

This file contains all of tables, figures, and diagrams from *The Sounds of Spanish: Analysis and Application*, by Robert M. Hammond, published by Cascadilla Press.

All pages are cropped down to a small page size, so if you print from Acrobat using “fit to page” it will enlarge the printout. This will make transparencies clearer.

Figure 1.1. Basic organization of the rule-based generative phonology model

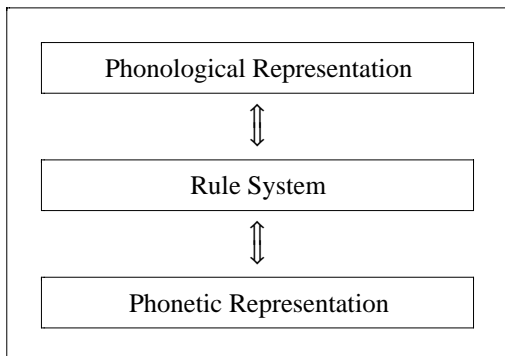


Figure 1.2. An example of an SPE-based generative phonological rule

$$/d/ \rightarrow [d] / V_V$$

Table 2.1. Spelling/pronunciation non-correspondences in American Spanish

Words	Problematic letters
asta h asta	“h”
susurro z arzuela cerrar cicatriz	“s”, “z”, “c”
j eringar j inete gente gimnasio	“j”, “g”
b aca v aca tubo tuvo	“b”, “v”

Table 2.2. Boundary symbols used in this book

Boundary symbol	Type of transcription	Example	
/.../ [...]	Phonemic Phonetic	casa casa	/kasa/ [kása]
Boundary symbol	Type of boundary	Example	
CV.CV #...# ##...##	Syllable Word Phrase (breath group)	casa la casa Está en la casa.	ca.sa #la#ca.sa# ##es.tá#en#la#ca.sa##

Table 2.3. Silent letters of Spanish orthography

Example	Silent letter	Letter transcription	Word transcription
1. hasta	“h”	[Ø] (none)	[ás.ʔa]
2. ahogar	“h”	[Ø]	[a.o.ɣár]
3. guerra	“u”	[Ø]	[gé.řa]
4. guitarra	“u”	[Ø]	[gi.ʔá.řa]
5. quedar	“u”	[Ø]	[ke.ʔár]
6. quitar	“u”	[Ø]	[ki.ʔár]

Table 2.4. The Spanish letter “x” representing two sounds in Spanish

Example	Letter	Letter transcription	Word transcription
1. examen	“x”	[ɣs]	[eɣ.sá.men]
2. extraer	“x”	[ks]	[eks.ɾa.ér]

Table 2.5. Spanish spelling/transcription differences in *seseo* and *distinción* dialects

Word	Letter	Phonetic transcription	
		<i>distinción</i>	<i>seseo</i>
1. sapo	“s”	[sá.po]	[sá.po]
2. casas	“s”	[ká.sas]	[ká.sas]
3. zarzuela	“z”	[θar.θwé.l̞a]	[sar.swé.l̞a]
4. caza	“z”	[ká.θa]	[ká.sa]
5. paz	“z”	[páθ]	[pás]
6. centro	“c”	[θéŋ.t̞ro]	[séŋ.t̞ro]
7. cine	“c”	[θí.ne]	[sí.ne]

Table 2.6. Miscellaneous Spanish spelling/transcription problems frequently encountered by English speakers

Example	Problematic letter	Letter transcription	Word transcription
1. guapo	“u”	[w]	[gwá.po]
2. antiguo	“u”	[w]	[aŋ.ʎí.ywo]
3. vergüenza	“ü”	[w]	[ber.ywén.sa]
4. pingüino	“ü”	[w]	[piŋ.gwí.no]
5. jeringar	“j”	[h]	[he.riŋ.gár]
6. jinete	“j”	[h]	[hi.né.ʎe]
7. jarabe	“j”	[h]	[ha.rá.ʎe]
8. jorobar	“j”	[h]	[ho.ro.ʎár]
9. junto	“j”	[h]	[hún.ʎo]
10. gente	“g”	[h]	[héŋ.ʎe]
11. gimnasio	“g”	[h]	[him.ná.syo]
12. baca	“b”	[b]	[bá.ka]
13. tubo	“b”	[β]	[tú.βo]
14. vaca	“v”	[b]	[bá.ka]
15. tuvo	“v”	[β]	[tú.βo]

Figure 3.1. Path of the airstream during the production of egressive speech sounds

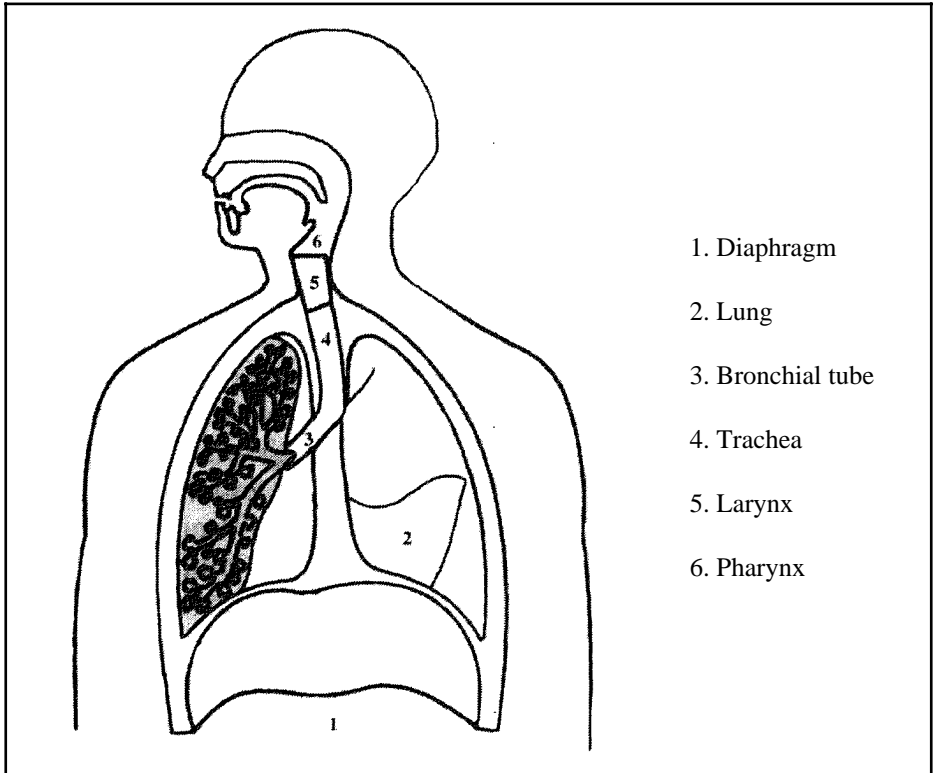


Figure 3.2. Facial cross-section illustrating the location of some of the more important anatomical structures involved in the production of human speech sounds

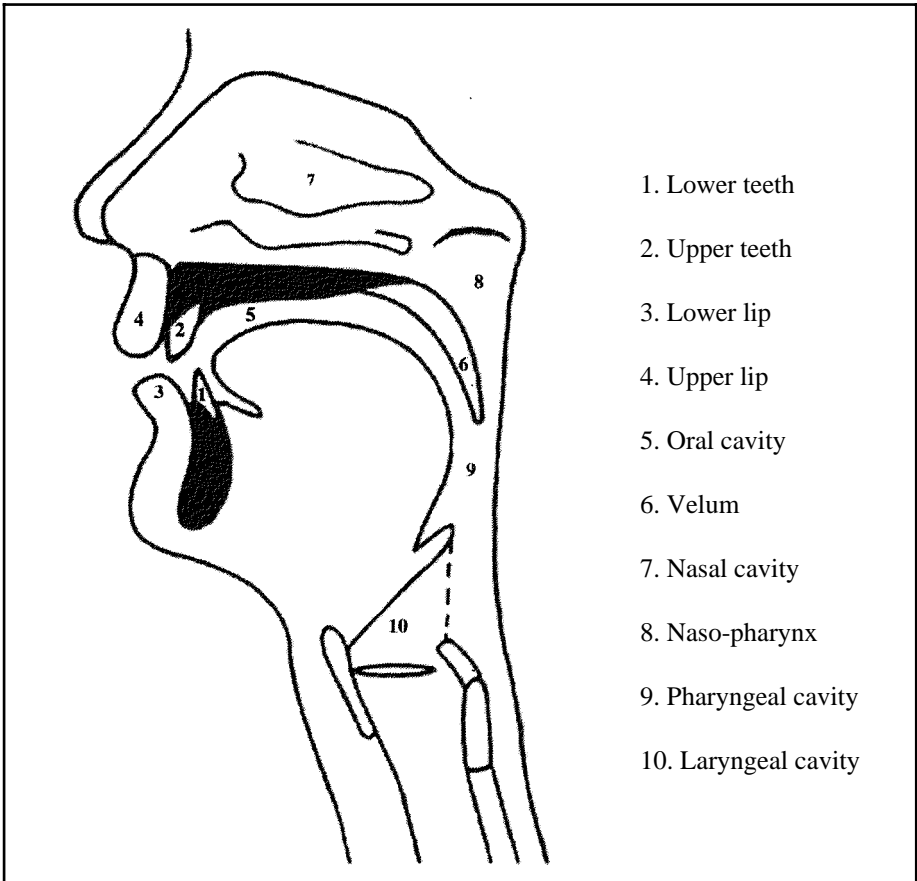


Figure 4.1. The five vowel phonemes of Spanish with key words shown according to their relative articulation position in the oral cavity

<i>/i/ si</i>		<i>/u/ su</i>
<i>/e/ se</i>		<i>/o/ so</i>
	<i>/a/ la</i>	

Figure 4.2. The eleven vowel phonemes of American English with key words shown according to their relative articulation position in the oral cavity

<p><i>/i^y/ beat</i></p> <p><i>/ɪ/ bit</i></p>		<p><i>/u^w/ boot</i></p> <p><i>/ʊ/ book</i></p>
<p><i>/e^y/ bait</i></p> <p><i>/ɛ/ bet</i></p>	<p><i>/ʌ/ but</i></p>	<p><i>/o^w/ boat</i></p> <p><i>/ɔ/ bought</i></p>
<p><i>/æ/ bat</i></p>	<p><i>/ɑ/ bot</i></p>	

Figure 4.3. The nine regions of the oral cavity

high-front	high-central	high-back
mid-front	mid-central	mid-back
low-front	low-central	low-back

Figure 4.4. Pairs of tense and lax vowel phonemes in American English

<p>/i^y/ [+tense] /ɪ/ [-tense]</p>		<p>/u^w/ [+tense] /ʊ/ [-tense]</p>
<p>/e^y/ [+tense] /ɛ/ [-tense]</p>		<p>/o^w/ [+tense] /ɔ/ [-tense]</p>

Table 4.1. Some additional vowel contrasts found in standard European French

<p>Oral versus nasalized vowels</p>	<p>/ɛ/ Mid front lax <i>oral</i> vowel versus /ɛ̃/ Mid front lax <i>nasalized</i> vowel <i>fait</i> [fɛ] ‘fact’ versus <i>fin</i> [fɛ̃] ‘end’</p>
<p>Rounded versus non-rounded oral vowels</p>	<p>/i/ High <i>front</i> tense <i>non-rounded</i> oral vowel versus /ü/ High <i>front</i> tense <i>rounded</i> oral vowel versus /u/ High <i>back</i> tense <i>rounded</i> oral vowel <i>si</i> [sɪ] ‘if’ versus <i>su</i> [sü] ‘known’ versus <i>sous</i> [sú] ‘under’</p>
<p>Rounded versus non-rounded nasalized vowels</p>	<p>/ɛ̃/ Mid front <i>non-rounded</i> lax nasalized vowel versus /œ̃/ Mid front <i>rounded</i> lax nasalized vowel <i>brin</i> [brɛ̃] ‘blade’ versus <i>brun</i> [brœ̃] ‘brown’</p>

Figure 5.1. The structure of the Spanish syllable

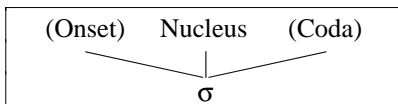


Table 5.1. Spanish syllable structures

Syllable type	Example	Transcription
1. V	#a.mar#	[a.már]
2. CV	#me.sas#	[mé.sas]
3. CCV	#pla.cer#	[pl̄a.sér]
4. CCCVC	#clien.te#	[klyén̄.te]
5. VC	#al.go#	[ál̄.ɣo]
6. VCC	#abs.tracto	[abs.trák̄.t̄o]
7. CVC	#co.mer#	[ko.mér]
8. CCVC	#pues#	[pwés]
9. CCVCC	#claus.tro#	[kl̄áws̄.t̄ro]

Table 5.2. The six active articulators and their descriptors

Active articulator	Descriptors		
Lower lip	Bilabials	Labio-dentals	
Tongue blade	Apical	Laminal	Frontal
Tongue body	Dorsal	Pre-dorsal Post-dorsal	
Velum	Nasal	Uvular	
Tongue root	Pharyngeal		
Vocal folds	Laryngeal (or glottal)		

Table 5.3. Places of articulation, descriptors, and principal active articulators

Place of articulation	Descriptors	Active articulator	Spanish example
Upper lip Upper front teeth	Bilabial Labio-dental	Lower lip	b oca f jar
Between upper & lower front teeth Behind upper front teeth Alveolar ridge Alveolar ridge/ pre-palatal area Anterior portion of hard palate Central or posterior area of hard palate	Interdental Dental Alveolar Retroflex Palato-alveolar Palatal	Tongue blade	c ita (when pronounced [θí.ʧa]) đ ía r abo s ed ch ico ñ ame
Anterior area of soft palate Posterior area of soft palate	Velar Post-velar	Tongue body	g ato j arro (when pronounced [χá.ro])
Secondary occlusion in oral cavity Uvula	Nasal Uvular	Velum	m ata j arro (when pronounced [Rá.ro])
Posterior wall of pharynx	Pharyngeal	Tongue root	(none)
Glottis	Glottal	Vocal folds	j arro (when pronounced [há.ro])

Table 5.4. Stricture types with the cavities where strictures occur and the active articulator associated with each group

Class of sounds	Stricture type	Cavity	Primary articulator	Spanish examples
1. Glides	Minimal obstruction of airflow	Laryngeal	Vocal folds	(none)
		Pharyngeal	Tongue root	(none)
		Oral	Tongue blade	[y]
			Tongue body	[w]
2a. Lateral liquids	Lateral release	Oral	Tongue blade	[l̠]
2b. Non-lateral liquids	Many	Oral	Tongue blade	[r], [ʀ]
3. Nasals	Secondary articulator in oral cavity	Nasal	Velum	[m], [n]
4. Fricatives	Radical close approximation between articulator and place of articulation	Laryngeal	Vocal folds	[h]
		Pharyngeal	Tongue root	(none)
		Oral	Tongue blade	[s]
			Tongue body	[x]
5. Affricates	Occlusive onset followed by fricative release	Oral	Tongue blade	[tʃ]
			Lower lip	(none)
6. Stops	Total occlusion by articulator in direct contact with place of articulation	Laryngeal	Vocal folds	(none)
		Pharyngeal	Tongue root	(none)
		Oral	Tongue blade	[t̪], [d̪]
			Tongue body	[k], [g]
		Lower lip	[p], [b]	

Table 5.5. Spanish stop phonemes which exploit a voicing contrast

Stop phoneme	Voicing	Primary articulator	Place of articulation
/p/ /b/	Voiceless Voiced	Lower lip Lower lip	Upper lip Upper lip
/t/ /d/	Voiceless Voiced	Tongue blade Tongue blade	Upper teeth Upper teeth
/k/ /g/	Voiceless Voiced	Tongue body Tongue body	Velum Velum

Figure 6.1. Relative airstream obstruction and the five families of sounds

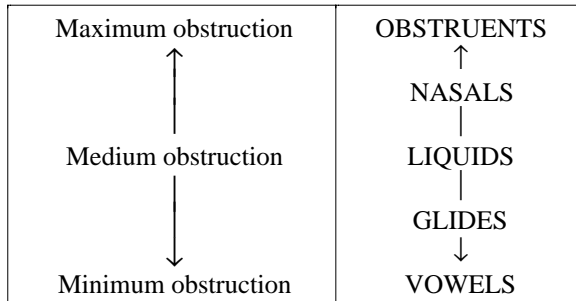


Figure 6.2. Subdivision of three principal categories of obstruents according to the parameter of airstream obstruction

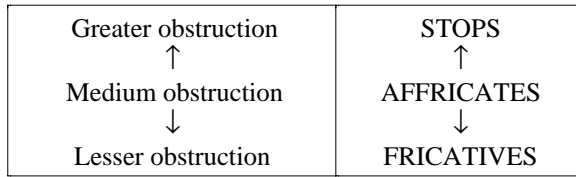


Figure 6.3. The five vowel phonemes of Spanish

<i>/i/</i>		<i>/u/</i>
<i>/e/</i>		<i>/o/</i>
	<i>/a/</i>	

Table 7.1. Different pronunciations of the American English phoneme /t/

Word	Phonetic realization of /t/	Phonetic description of /t/
stem	[t]	Plain, unaspirated
ten	[t ^h]	Aspirated
strip	[t̚]	Retroflexed
atom	[ɾ]	Flapped (tapped)
panty	[N]	Nasal flap
hit	[t̚ʔ]	Glottalized
button	[ʔ]	Glottal stop
tents	[Ø]	Zero (deleted)

Figure 7.1. Aspiration rule for the American English phoneme /t/

/t/	→	[t ^h]	/	\$	___
1	2	3	4	5	6

Figure 7.2. A phonological model and its three major components

PHONEMES → (PHONOLOGICAL RULES) → (ALLOPHONES)

Table 7.2. English examples illustrating notion of distinctiveness

Original word	Interchanged sounds	New word
pit /pɪt/	/p/ and /b/	bit /bɪt/
tip /tɪp/	/t/ and /d/	dip /dɪp/
back /bæk/	/k/ and /g/	bag /bæg/
cheap /tʃiːp/	/tʃ/ and /j/	jeep /ʃiːp/
sun /sʌn/	/n/ and /m/	sum /sʌm/
rot /rɒt/	/ɹ/ and /l/	lot /lɒt/
peat /piːt/	/iː/ and /ɪ/	pit /pɪt/
boot /buːt/	/uː/ and /oː/	boat /boːt/

Figure 7.3. Classical Latin vowel phonemes

<i>/ī/</i> <i>/ĩ/</i>		<i>/ū/</i> <i>/ũ/</i>
<i>/ē/</i> <i>/ě/</i>		<i>/ō/</i> <i>/ǒ/</i>
	<i>/ā/</i> <i>/ǎ/</i>	

Table 7.3. Vowel length in American English

Word	Phonemic representation	Phonetic realization	Environment
1. cap 2. cab	/kæp/ /kæb/	[k ^h æ̃p] [k ^h æ̃:b]	Before /p/ Before /b/
3. cat 4. cad	/kæt/ /kæd/	[k ^h æt̃] [k ^h æ̃:d]	Before /t/ Before /d/
5. back 6. bag	/bæk/ /bæg/	[bæ̃k] [bæ̃:g]	Before /k/ Before /g/
7. batch 8. badge	/bæç/ /bæj̃/	[bæ̃ç̃] [bæ̃:̃j̃]	Before /ç/ Before /j̃/
9. bus 10. buzz	/bʌs/ /bʌz/	[bʌ̃s] [bʌ̃:z]	Before /s/ Before /z/
11. safe 12. save	/seʏf/ /seʏv/	[sé̃ʏf] [sé̃ʏ:v]	Before /f/ Before /v/

Figure 7.4. Oral vowel phonemes of Brazilian Portuguese

/i/		/u/
/e/ /ɛ/		/o/ /ɔ/
	/a/	

Figure 7.5. The five vowel phonemes of Spanish

<i>/i/</i>		<i>/u/</i>
<i>/e/</i>		<i>/o/</i>
	<i>/a/</i>	

Table 7.4. Minimal pairs showing the phonemic function of /s/ and /z/ in English

Word	Phonemic representation	Phonetic representation
sue zoo	/su ^w / /zu ^w /	[sú ^w] [zú ^w]
bus buzz	/bʌs/ /bʌz/	[bʌs] [bʌ:z]
peace peas	/pi ^y s/ /pi ^y z/	[pí ^y s] [pí ^y :z]

Table 7.5. The phones [s] and [z] in some dialects of American Spanish

Word	Phonemic representation	Phonetic representation
1. casa	/kasa/	[ká.sa]
2. mesa	/mesa/	[mé.sa]
3. caza	/kasa/	[ká.sa]
4. zapato	/sapa̠to/	[sa.pá.̠to]
5. mismo	/mismo/	[míz.mo]
6. desde	/ðesðe/	[ðéz.ðe]
7. isla	/isla/	[íz.l̞a]
8. rasgo	/řasgo/	[řáz.ɣo]

Table 7.6. Pronunciation of representative words in *lleísta* and *yeísta* Spanish dialects

Word	<i>lleísta</i> dialects	<i>yeísta</i> dialects
llave	/ʎabe/	/yabe/
calle	/kaʎe/	/kaye/
llegar	/ʎegar/	/yegar/
caballo	/kabaʎo/	/kabayó/
halla	/aʎa/	/aya/
haya	/aya/	/aya/
callo	/kaʎo/	/kayó/
cayo	/kayó/	/kayó/

Table 7.7. Phonemic and phonetic representations of /l̞/ before palatals in all standard Spanish dialects

Word	Phonemic representation	Phonetic representation
el llavero	/el̞̃#yabero/	[eλ.ʝa.βé.ro]
el yate	/el̞̃#yate/	[eλ.ʝá.te]
el ñame	/el̞̃#ñame/	[eλ.ñá.me]
al llegar	/al̞̃#yegar/	[aλ.ʝe.ʝár]
al llevar	/al̞̃#yebar/	[aλ.ʝe.βár]

**Table 7.8. Complementary distribution
of two allophones of American English /p/**

Word	Phonemic representation	Phonetic representation
spin	/spɪn/	[spín]
pin	/pɪn/	[p ^h ín]
pop	/pɒp/	[p ^h ɒp]

Table 7.9. Free variation of two allophones of Spanish /n/

Word	Phonemic representation	Phonetic representations
pan	/pan/	[pán] or [pán̞]
hablan	/abl̞an/	[á.βl̞án] or [á.βl̞án̞]
fin	/fin/	[fín] or [fín̞]

Figure 7.6. The five vowel phonemes of Spanish

<i>/i/</i>		<i>/u/</i>
<i>/e/</i>		<i>/o/</i>
	<i>/a/</i>	

Table 7.10. The consonant phonemes of Spanish

	Bi-lab.	Lab-den.	Int-den.	Den.	Alv.	Al-pal.	Pal.	Vel.	Pos. vel.	Glott.
Voiceless stops	/p/			/t̪/				/k/		
Voiced stops	/b/			/d̪/				/g/		
Voiceless affricate						/t͡ʃ/				
Voiceless fricatives		/f/	/θ/		/s/			(/x/ /χ/	/h/)	
Voiced fricatives							/ʝ/	/w/		
Nasals	/m/				/n/		/ɲ/			
Liquids					/l̪ː/ /r/ /r̄/		/ʎ/			
Glides							/y/	/w/		

Figure 7.7. The eleven vowel phonemes of American English

<p><i>/iʏ/</i></p> <p><i>/ɪ/</i></p>		<p><i>/uʷ/</i></p> <p><i>/ʊ/</i></p>
<p><i>/eʏ/</i></p> <p><i>/ɛ/</i></p>	<p><i>/ʌ/</i></p>	<p><i>/oʷ/</i></p> <p><i>/ɔ/</i></p>
<p><i>/æ/</i></p>	<p><i>/ɑ/</i></p>	

Table 7.11. The consonant phonemes of American English

	Bi-lab.	Lab-den.	Int-den.	Den.	Alv.	Al-pal.	Pal.	Vel.	Pos. vel.	Glot.
Voiceless stops	/p/				/t/			/k/		
Voiced stops	/b/				/d/			/g/		
Nasals	/m/				/n/			/ŋ/		
Voiceless fricatives		/f/	/θ/		/s/	/š/				/h/
Voiced fricatives		/v/	/ð/		/z/	/ž/				
Voiceless affricate						/č/				
Voiced affricate						/j/				
Liquids					/l/ /ɹ/					
Glides							/y/	/w/		

Figure 8.1. The thirteen vowel sounds found in the speech of many speakers of American English

<p>/iʏ/ /ɪ/</p>	<p>[i]</p>	<p>/uʷ/ /ʊ/</p>
<p>/eʏ/ /ɛ/</p>	<p>[ə] /ʌ/</p>	<p>/oʷ/ /ɔ/</p>
<p>/æ/</p>	<p>/ɑ/</p>	

Table 8.1. Semantic distinctions in Spanish adjectives, nouns, and verbs lost due to improper unstressed vowel reduction

Lexical item	Correct pronunciation	Improper pronunciation
bonito bonita	[bo.ní.ʔo] [bo.ní.ʔa]	*[bo.ní.ʔə] *[bo.ní.ʔə]
caso casa	[ká.so] [ká.sa]	*[ká.sə] *[ká.sə]
hablo habla	[á.βl̄ ^o] [á.βl̄ ^a]	*[á.βl̄ ^ə] *[á.βl̄ ^ə]

Table 8.2. Phonetic transcriptions of the correct and *incorrect (diphthongized) pronunciations of the four non-low Spanish vowels

Lexical item	Correct pronunciation	Improper pronunciation
si	[sí]	*[sɪʎ]
su	[sú]	*[sú ^w]
se	[sé]	*[sé ^y]
so	[só]	*[só ^w]

Figure 8.2. The six vowel sounds of Spanish shown according to their relative articulation position in the oral cavity

/i/		/u/
/e/ [ɛ]		/o/
	/a/	

Figure 8.3. Facial cross-section showing the articulation of the Spanish vowel /a/

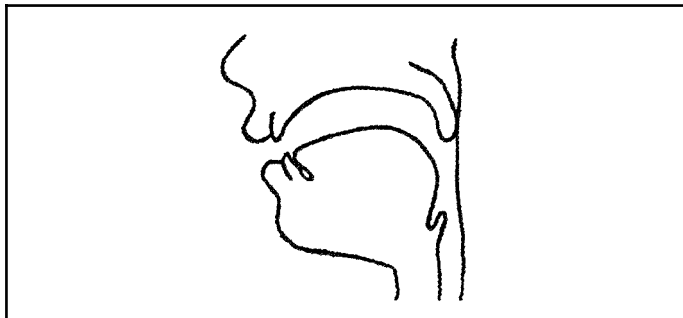


Figure 8.4. Facial cross-section showing the articulation of the Spanish vowel /e/

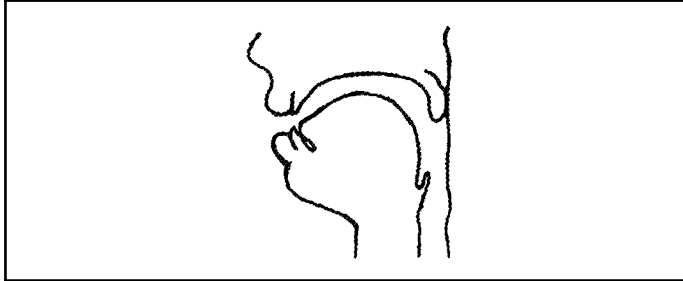


Figure 8.5. Facial cross-section showing the articulation of the Spanish vowel [ɛ]

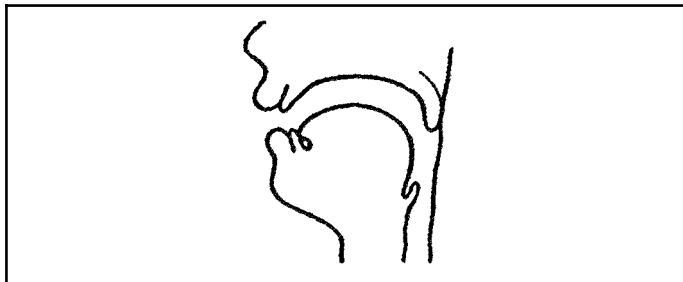


Figure 8.6. Facial cross-section showing the articulation of the Spanish vowel /o/

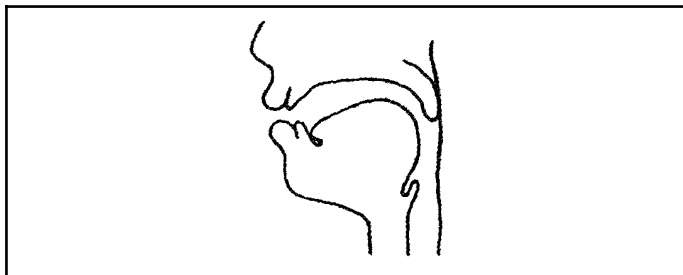
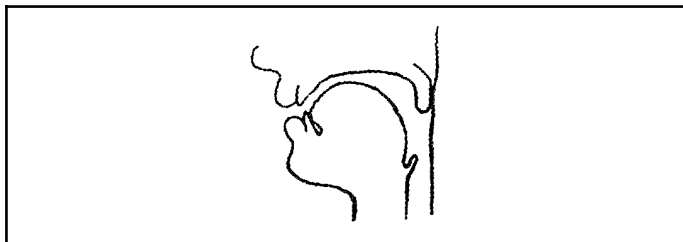


Figure 8.7. Facial cross-section showing the articulation of the Spanish vowel /i/



**Table 8.3. Examples of the letter “i”
in Spanish words when always pronounced as [i]**

Word	Position within word	Pronunciation of “i”
invitar	Word-initial, before a consonant	[i]n.vi.tar
colibrí	Word-final, following a consonant	co.li.br[i]
colibrí invitar	Word-medially, between two consonants	co.l[i].brí in.v[i].tar

Table 8.4. Examples of the letter “i” in tautosyllabic pre-vocalic and post-vocalic environments

Word	Correct pronunciation	Incorrect pronunciation
1. farmacia	far.ma.[sya]	*far.ma.[si.a]
2. caigo	[káy].go	*[ka.i]go
3. siete	[syé].te	*[si.e].te
4. veinte	[béyn̩].te	*[be.in̩].te
5. acción	ac[syón]	*ac[si.on]
6. oigo	[óy].go	*[o.i].go
7. ciudad	[syu].dad	*[si.u].dad
8. cuidado	[kwi].dado	*[ku.i]da.do
9. yo	[yó]	*[i.o]
10. hierba	[yéer].ba	*[i.er].ba

Table 8.5. Examples of the letter “i” in pre-vocalic and post-vocalic environments varying according to stress

Word	Vowel and stress combination	Correct pronunciation
1. fiara	ĩ + á	[fyá].ra
2. panadería	í + ä	pa.na.de.[rí.a]
3. farmacia	ĩ + ä	far.ma.[sya]
3. caigo	á + ĩ	[káy].go
4. maíz	ä + í	ma.[ís]
6. bailamos	ä + ĩ	[bay].la.mos
7. siete	ĩ + é	[syé].te
8. esquíe	í + ě	es.[kí.e]
9. bienestar	ĩ + ě	[bye].nes.tar
10. seis	é + ĩ	[séys]
11. leído	ě + í	[l ^h e.í].do
12. aceituna	ě + ĩ	a.[sey].tu.na
13. rió	ĩ + ó	[řyó]
14. río	í + ö	[ří.o]
15. principio	ĩ + ö	prin.ci.[pyo]
16. oigo	ó + ĩ	[óy].go
17. oí	ö + í	[o.í]
18. oigamos	ö + ĩ	[oy].ga.mos
19. diurna	ĩ + ú	[dyúr].na
20. ciudad	ĩ + ů	[syu].dad
21. cuida	ũ + í	[kwí].da
22. cuidado	ũ + ĩ	[kwi].da.do

Figure 8.8. Facial cross-section showing the articulation of the Spanish vowel /u/

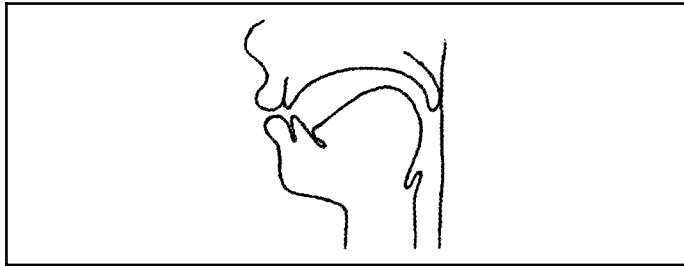


Table 8.6. Examples of the letter “u” in Spanish words when always pronounced as [u]

Word	Position within word	Pronunciation of “u”
u bicar	Word-initial, before a consonant	[u].bi.car
trib u	Word-final, following a consonant	tri.b[u]
trad u je pul u po	Word-medially, between two consonants	tra.d[ú].je p[ú]l.po

Table 8.7. Examples of the letter “u” in tautosyllabic pre-vocalic and post-vocalic environments

Word	Correct pronunciation	Incorrect pronunciation
1. continua	con.ti.[nwa]	*con.ti.[nu.a]
2. aula	[áw].la	*[a.u].la
3. pues	[pwés]	*[pu.es]
4. deuda	[d́éw].da	*[d̥e.u].da
5. cuota	[kwó].ta	*[ku.o].ta
6. bou	[bów]	*[bo.u]
7. cuidado	[kwi].da.do	*[ku.i].da.do
8. ciudad	[syu].dad	*[si.u].dad
9. hueso	[wé].so	*[u.e].so
10. huele	[wé].le	*[u.e].le

Table 8.8. Examples of the letter “u” in pre-vocalic and post-vocalic environments varying according to stress

Word	Vowel and stress combination	Correct pronunciation
1. continuara	ũ + á	con.ti.[ɲwá].ra
2. continúa	ú + ã	con.ti.[nú.a]
3. continuará	ũ + ã	con.ti.[ɲwa].rá
3. aula	á + ũ	[áw].la
4. ataúd	ã + ú	a.[ʔa.úɸ]
6. taurino	ã + ũ	[ʔaw]ri.no
7. duende	ũ + é	[ɖwéɲ].de
8. continúe	ú + ě	kon.ti.[nú.e]
9. buenísimo	ũ + ě	[bwe].ní.si.mo
10. deuda	é + ũ	[ɖéw].da
11. reúne	ě + ú	[ře.ú].ne
12. feudal	ě + ũ	[few].dal
13. cuota	ũ + ó	[kwó].ta
14. actúo	ú + ǒ	ac[ʔú.o]
15. continuo	ũ + ǒ	con.ti.[nwo]
16. cuida	ũ + í	[kwí].da
17. cuidado	ũ + ĭ	[kwi].da.do
18. diurna	ĩ + ú	[ɖyúr].na
19. ciudad	ĩ + ũ	[syu].dad

Figure 9.1. Facial cross-section comparing the articulation of the palatal glide [y] and of the vowel [i]

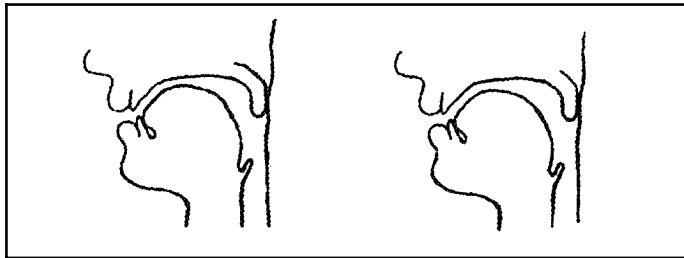


Table 9.1. Spanish lexemes with the pre- or post-consonantal grapheme “i” preceding and following “e”, “o”, or “a”, or preceding the vowel “u”

Word	Phonetic transcription
1. siete	[syé.ɰe]
2. veinte	[beyn.ɰe]
3. acción	[ak.syón]
4. oigo	[óy.ɣo]
5. farmacia	[far.má.sya]
6. caigo	[káy.ɣo]
7. ciudad	[syu.ɰáɰe]

Table 9.2. Spanish lexemes with the grapheme “i” bearing a written accent or when it follows the letter “u”

Word	Phonetic transcription
1. esquíe	[es.kí.e]
2. leído	[l ^ˈ e.í.ðo]
3. río	[rí.o]
4. oí	[o.í]
5. panadería	[pa.na.ðe.rí.a]
6. maíz	[ma.ís]
7. cuidado	[kwi.ðá.ðo]

Table 9.3. Lexical items where {consonant + /y/ + vowel} sequences occur in Spanish

Consonant cluster	Following vowel	Example	Phonetic transcription
/p/ + /y/	[a]	piano	[pyá.no]
/p/ + /y/	[e]	pie	[pyé]
/p/ + /y/	[o]	piojo	[pyó.ho]
/p/ + /y/	[u]	piular	[pyu.í.ár]
/b/ + /y/	[a]	viaje	[byá.he]
/b/ + /y/	[e]	viejo	[byé.ho]
/b/ + /y/	[o]	vio	[byó]
/b/ + /y/	[u]	viuda	[byú.ða]
/m/ + /y/	[a]	miasma	[myás.ma]
/m/ + /y/	[e]	miel	[myéí]
/m/ + /y/	[o]	miope	[myó.pe]
/m/ + /y/	[u]	miura	[myú.ra]
/f/ + /y/	[a]	fianza	[fyán.sa]
/f/ + /y/	[e]	fiesta	[fyés.ʔa]
/f/ + /y/	[o]	fio	[fyó]
/f/ + /y/	[u]	fiucia	[fyú.sya]
/θ/ + /y/	[a]	ciático	[θyá.ʔi.ko]
/θ/ + /y/	[e]	cierra	[θyé.ʔa]
/θ/ + /y/	[o]	bendición	[ben.ði.θyón]
/θ/ + /y/	[u]	ciudad	[θyu.ða.ð]
/t/ + /y/	[a]	tiara	[tyá.ra]
/t/ + /y/	[e]	tiene	[tyé.ne]
/t/ + /y/	[o]	sintió	[sin.ʔyó]
/t/ + /y/	[u]	tiuque	[tyú.ke]
/d/ + /y/	[a]	dialecto	[dya.í.ék.ʔo]
/d/ + /y/	[e]	dieta	[dyé.ʔa.]
/d/ + /y/	[o]	dio	[dyó]
/d/ + /y/	[u]	diurno	[dyúr.no]

/l/ + /y/	[a]	liar	[ʎyár]
/l/ + /y/	[e]	liebre	[ʎyé.βre]
/l/ + /y/	[o]	julio	[hú.ʎyo]
/l/ + /y/	[u]	liudo	[ʎyú.ðo]
/r/ + /y/	[a]	memoria	[me.mó.rya]
/r/ + /y/	[e]	aries	[á.ryes]
/r/ + /y/	[o]	primario	[pri.má.ryo]
/ř/ + /y/	[a]	riacho	[řyá.čo]
/ř/ + /y/	[e]	riesgo	[řyés.yo]
/ř/ + /y/	[o]	rio	[řyó]
/n/ + /y/	[a]	Antonia	[aŋ.tó.ñya]
/n/ + /y/	[e]	niego	[ñyé.yo]
/n/ + /y/	[o]	demonio	[ðe.mó.ñyo]
/s/ + /y/	[a]	ciático	[syá.ti.ko]
/s/ + /y/	[e]	cierra	[syé.řa]
/s/ + /y/	[o]	coció	[ko.syó]
/s/ + /y/	[u]	ciudad	[syu.ðáð]
/k/ + /y/	[a]	psiquiatra	[si.kyá.tra]
/k/ + /y/	[e]	quiere	[kyé.re]
/k/ + /y/	[o]	quiosco	[kyós.ko]
/g/ + /y/	[a]	guiar	[gyár]
/g/ + /y/	[e]	alguien	[ál.yyen]
/g/ + /y/	[o]	guió	[gyó]
/x/ + /y/	[a]	magia	[má.xya]
/x/ + /y/	[e]	sugiero	[su.xyé.ro]
/x/ + /y/	[o]	escogió	[es.ko.xyó]
/h/ + /y/	[a]	magia	[má.hya]
/h/ + /y/	[e]	sugiero	[su.hyé.ro]
/h/ + /y/	[o]	escogió	[es.ko.hyó]

(Table 9.3. continued)

Table 9.4. Spanish lexical items with [C₁C₂GV] sequences in word-initial and syllable-initial positions

Consonant cluster	Example	Phonetic transcription
/pr/ + /y/ /pl̂/ + /y/	prieto pliego	[pɾyé.ʔo] [pl̂yé.ʔo]
/br/ + /y/ /bl̂/ + /y/	brial biblia	[bɾyál] [bí.βlyá]
/fr/ + /y/ /fl̂/ + /y/	friego Cantinfliar	[fɾyé.ʔo] [kaŋ.ʔiŋ.flyár]
/ʔr/ + /y/	triumfo	[ʔɾyúŋ.fo]
/d̂r/ + /y/	vidrio	[bí.ɸɾyo]
/kr/ + /y/ /kl̂/ + /y/	crianza cliente	[kɾyán.sa] [klyéŋ.ʔe]
/gr/ + /y/ /gl̂/ + /y/	griego mangliar	[gɾyé.ʔo] [maŋ.glyár]

Table 9.5. Representative examples of cognate vocabulary items with English [CyV] and Spanish [CV] sequences

English word {C+[y]+V}	Spanish cognate {C+V}
1. popular	popular
2. distribution	distribución
3. regular	regular
4. pure	puro
5. puberty	pubertad
6. vocabulary	vocabulario
7. future	futuro
8. music	música
9. Cuba	Cuba
10. argue	argüir
11. futile	fútil
12. salutation	salutación
13. monument	monumento
14. museum	museo
15. granulate	granular

Figure 9.2. Facial cross-section comparing the articulation of the labio-velar glide [w] and of the vowel [u]

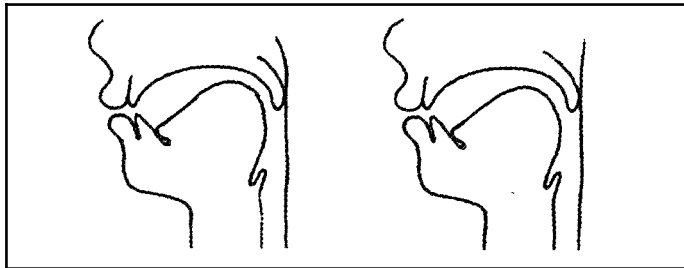


Table 9.6. Spanish lexemes with the pre- and post-consonantal grapheme “u” preceding and following “e”, “o”, or “a” or preceding the vowel “i”

Word	Phonetic transcription
1. dueño	[ɰwé.ɲo]
2. suave	[swá.βe]
3. cuota	[kwó.ɬa]
4. deuda	[ɰéw.ɬa]
5. autor	[aw.ɬór]
6. bou	[bów]
7. cuidado	[kwi.ɬá.ɬo]

Table 9.7. Spanish lexemes with the grapheme “u” bearing a written accent and when it follows the vowel “i”

Word	Phonetic transcription
1. continúe	con.ti.[nú.e]
2. continúa	con.ti.[nú.a]
3. actúo	ac[<u>tú</u> .o]
4. reúne	[<u>re</u> .ú].ne
5. ataúd	a.[<u>ta</u> .ú]
6. ciudad	[syu].dad

Table 9.8. Lexical items where {consonant + /w/ + vowel} sequences occur in Spanish

Consonant cluster onset	Following vowel	Example	Phonetic transcription
/p/ + /w/	[a]	puar	[pwár]
/p/ + /w/	[e]	puerta	[pwér.ɾa]
/b/ + /w/	[a]	buharro	[bwá.ɾo]
/b/ + /w/	[e]	bueno	[bwé.no]
/b/ + /w/	[i]	buitre	[bwí.ɾe]
/m/ + /w/	[a]	muaré	[mwa.ré]
/m/ + /w/	[e]	mueco	[mwé.ko]
/f/ + /w/	[a]	fuacatazo	[fwa.ka.ɾá.so]
/f/ + /w/	[e]	fuelle	[fwé.ɲe]
/f/ + /w/	[i]	fui	[fwí]
/θ/ + /w/	[a]	zuavo	[θwá.βo]
/θ/ + /w/	[e]	zueco	[θwé.ko]
/θ/ + /w/	[i]	zuiza	[θwí.θa]
/t̪/ + /w/	[a]	tuatúa	[t̪wa.tú.a]
/t̪/ + /w/	[e]	tuerto	[t̪wér.ɾo]
/t̪/ + /w/	[i]	tuina	[t̪wí.na]
/d̪/ + /w/	[a]	dual	[d̪wá.ɫ̪]
/d̪/ + /w/	[e]	duende	[d̪wé.ɲe]
/d̪/ + /w/	[o]	duodécimo	[d̪wo.ɬé.si.mo]
/d̪/ + /w/	[i]	duita	[d̪wí.ɾa]
/l/ + /w/	[a]	luan	[l^wán]
/l/ + /w/	[e]	luego	[l^wé.ɣo]
/l/ + /w/	[i]	Luis	[l^wís]
/r/ + /w/	[a]	peruano	[pe.rwá.no]
/r/ + /w/	[e]	ciruela	[si.rwé.ɫ̪a]
/r̄/ + /w/	[a]	ruana	[r̄wá.na]
/r̄/ + /w/	[e]	ruego	[r̄wé.ɣo]
/r̄/ + /w/	[i]	ruido	[r̄wí.ɬ̪o]

/n/ + /w/	[e]	nuera	[ɲwé.ra]
/s/ + /w/	[a]	zuavo	[swá.βo]
/s/ + /w/	[e]	zueco	[swé.ko]
/s/ + /w/	[i]	zuiza	[swí.sa]
/č/ + /w/	[a]	chual	[čwál ^ˆ]
/č/ + /w/	[e]	chueco	[čwé.ko]
/č/ + /w/	[i]	chuita	[čwí.ta]
/ñ/ + /w/	[e]	pañuelo	[pa.ñwé.l ^ˆ o]
/ʎ/ + /w/	[e]	llueve	[ʎwé.βe]
/y/ + /w/	[e]	llueve	[ywé.βe]
/k/ + /w/	[a]	cuatro	[kwá.ʦro]
/k/ + /w/	[e]	cuerpo	[kwér.po]
/k/ + /w/	[o]	cuota	[kwó.ʦa]
/k/ + /w/	[i]	cuidar	[kwí.ɟár]
/g/ + /w/	[a]	guapo	[gwá.po]
/g/ + /w/	[e]	güélfos	[gwél ^ˆ .fos]
/g/ + /w/	[o]	antiguo	[aɲ.tí.ɣwo]
/g/ + /w/	[i]	güipil	[gwi.pí ^ˆ l]
/x/ + /w/	[a]	Juana	[xwá.na]
/x/ + /w/	[e]	jueves	[xwé.βes]
/x/ + /w/	[i]	juicio	[xwí.syo]
/h/ + /w/	[a]	Juana	[hwá.na]
/h/ + /w/	[e]	jueves	[hwé.βes]
/h/ + /w/	[i]	juicio	[hwí.syo]

(Table 9.8. continued)

Table 9.9. Spanish lexical items with [C₁C₂GV] sequences in word-initial or syllable-initial positions

Cluster	Example	Phonetic transcription
/pr/ + [w] /pl̩/ + [w]	prueba Pluesti	[prwé.βa] [pl̩wés.t̩i]
/br/ + [w] /bl̩/ + [w]	brueta ablunte	[brwé.t̩a] [a.βl̩wén̩.t̩e]
/fr/ + [w] /fl̩/ + [w]	fruir fluente	[frwír] [fl̩wén̩.t̩e]
/tr̩/ + [w]	trueco	[tr̩wé.ko]
/dr̩/ + [w]	druida	[dr̩wí.ða]
/kr/ + [w] /kl̩/ + [w]	cruel clueca	[krwél̩] [kl̩wé.ka]
/gr/ + [w] /gl̩/ + [w]	grueso igluar	[grwé.so] [i.ɣl̩wár]

Figure 10.1. Segmental sonority

Obstruents	Nasals	Liquids	Glides	Vowels
→				
1	2	3	4	5

Figure 10.2. The structure of the Spanish syllable

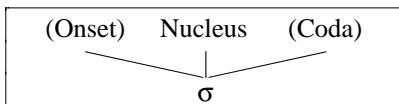


Table 10.1. The nine different Spanish syllable templates

Syllable type	Example	Transcription
1. V	#a.brir#	[a.β́rír]
2. CV	#ca.sas#	[ká.sas]
3. CCV	#bra.vo#	[brá.βo]
4. CCCVC	#in.fluen.cia#	[inj.fl̂wén.sya]
5. VC	#en.trar#	[en.ṽrár]
6. VCC	#abs.tracto	[aβs.ṽrák.ṽo]
7. CVC	#an.dar#	[an.ḁár]
8. CCVC	#brin.dis#	[brín.ḁis]
9. CCVCC	#claus.tro#	[kláws.ṽro]

Table 10.2. Possible syllable onsets in Spanish

Syllable onset	Example
1. Ø	a.brir
2. C	co .mer
3. CC	pla .cer
4. CCC	prue .ba

Table 10.3. Words illustrating the twelve possible {consonant + liquid} Spanish syllable onsets

CC onset	Examples	
	Word-initial	Word-internal
1. /pr/	pra .do	im. pre .sion.an.te
2. /pɫ̪/	pla .cer	im. pli .car
3. /br/	bre .gar	em. bra .gue
4. /bɫ̪/	blan .co	tem. blar
5. /t̪r/	tré .bol	re. tra .to
6. /d̪r/	dro .ga	po. drar
7. /kr/	cris .tal	in. cre .í.ble
8. /kɫ̪/	cla .ve	a. cla .rar
9. /gr/	gra .ve	a. gra .de.cer
10. /gɫ̪/	glo .ria	in. glés
11. /fr/	fre .gar	en. friar
12. /fɫ̪/	flor	in. fluen .cia

Table 10.4. The structure of all Spanish CC syllable onsets

Onset		Nucleus
Consonant ₁	Consonant ₂	
/p/		Syllable nucleus
/b/	/β̞/	
/f/	/ɾ/	
/t̪/		
/d̪/	[y]	
/k/	[w]	
/g/		

Table 10.5. Possible CCC syllable onsets in Spanish

CCC onset	Example	Phonetic transcription
1. /pr/ + /y/	prieto	[pr̩yé.ʔo]
2. /pr/ + /w/	prueba	[pr̩wé.βa]
3. /pl̩^/ + /y/	ampliar	[am.p̩ʎár]
4. /pl̩^/ + /w/	Pluesti	[pl̩^wés.iʔi]
5. /br/ + /y/	embriagar	[em.br̩ya.γár]
6. /br/ + /w/	brueta	[br̩wé.ʔa]
7. /bl̩^/ + /y/	biblia	[bí.β̩ʎya]
8. /bl̩^/ + /w/	ablunte	[a.β̩ʎwén.ʔe]
9. /ʔr/ + /y/	triunfar	[ʔ̩ryuŋ.fár]
10. /ʔr/ + /w/	trueco	[ʔ̩rwé.ko]
11. /d̩r/ + /y/	vidrio	[bí.ð̩ryo]
12. /d̩r/ + /w/	druida	[ð̩rwí.ða]
13. /kr/ + /y/	criar	[kryár]
14. /kr/ + /w/	cruel	[kr̩wél̩^]
15. /kl̩^/ + /y/	cliente	[k̩ʎyéŋ.ʔe]
16. /kl̩^/ + /w/	clueca	[kl̩^wé.ka]
17. /gr/ + /y/	griego	[gryé.γo]
18. /gr/ + /w/	grueso	[gr̩wé.so]
19. /gl̩^/ + /y/	mangliar	[maŋ.g̩ʎár]
20. /gl̩^/ + /w/	igluar	[i.γ̩ʎwár]
21. /fr/ + /y/	friego	[fryé.γo]
22. /fr/ + /w/	fruir	[fr̩wír]
23. /fl̩^/ + /y/	Cantinfliar	[kaŋ.ʔiŋ.f̩ʎár]
24. /fl̩^/ + /w/	fluidez	[fl̩wi.ð̩és]

Table 10.6. The structure of Spanish CCC syllable onsets

Onset			Nucleus
Consonant ₁	Consonant ₂	Consonant ₃	
/p/			Syllable nucleus
/b/			
/f/	/ʎ/	[y]	
/t/			
/d/	/r/	[w]	
/k/			
/g/			

Table 10.7. Possible Spanish syllable nuclei

Example	Phonetic transcription
asar	[a.sár]
edad	[e.ɗáɗ]
izar	[i.sár]
oler	[o.ɫér]
unir	[u.nír]

Table 10.8. Possible syllable codas in Spanish

Syllable coda	Example
1. Ø	a.brir
2. C	co.mer
3. CC	abs.tracto

Table 10.9. Examples of Spanish word-final single consonant codas

Example	Phoneme in coda position	Phonetic transcription
1. pan	/n/	[pán]
2. pared	/d̪/	[pa.ré̪]
3. comer	/r/	[ko.mér]
4. papel	/l̞/	[pa.pél̞]
5. tos	/s/	[tós]
6. ley	/y/	[l̞éy]
7. bou	/w/	[bów]
8. paz	/θ/	[páθ]
9. reloj	/h/ or /x/	[r̞e.l̞ó]

Table 10.10. Single consonant word-internal Spanish syllable codas

Consonant	Example	Phonemic transcription	Phonetic transcription
1. /y/ 2. /w/	peine auto	/peyne/ /aw̃to/	[péy.ne] [áw̃.ʔo]
3. /r/ 4. /l̃/	carta selva	/kar̃ta/ /sel̃ba/	[ká.r̃.ta] [sel̃.βa]
5. /m/ 6. /n/	sombra andar	/sonbra/ /añdar/	[sóm.bra] [añ.ðár]
7. /s/ 8. /p/ 9. /b/ 10. /t̃/ 11. /d̃/ 12. /k/ 13. /g/ 14. /f/ 15. /θ/	asta apto absorto atleta admitir acto indigno afgano izquierdo	/as̃ta/ /ap̃to/ /absort̃o/ /at̃l̃é̃ta/ /aḏmit̃ir/ /ák̃to/ /iñḏigno/ /afgano/ /iθkyer̃ðo/	[ás.ta] [áp̃.ʔo] [aβ̃.sór̃.ʔo] [at̃.l̃é̃.ta] [aḏ.mí.ʔir] [ák̃.ʔo] [iñ.ḏíỹ.no] [af̃.yá.no] [iθ̃.kyér̃.ðo]

Table 10.11. The structure of the possible single consonant Spanish syllable codas

	Word-internal consonant coda	Word-final consonant coda
Syllable nucleus	/y/	/y/
	/w/	/w/
	/r/	/r/
	/ʀ/	/ʀ/
	/n/	/n/
	/m/	
	/p/	
	/b/	
	/f/	
	(/θ/)	(/θ/)
	/t̪/	
	/d̪/	/d̪/
	/s/	/s/
	/k/	
	/g/	
		(/<h/x>/)

Table 10.12. A survey of CC word-internal Spanish syllable codas

Coda consonants	Example	Phonetic transcription
1. /y/ + /s/ 2. /w/ + /s/	aíslar claustro	[ays.ɫ̃ár] [kl̃áws.ɫ̃ro]
3. /r/ + /s/ 4. /l̃/ + /s/	perspicaz solsticio	[pers.pi.kás] [sol̃s̃.ɫ̃í.syo]
5. /n/ + /s/	monstruo	[móns.ɫ̃rwo]
6. /b/ + /s/ 7. /k/ + /s/	abstracto extenso	[aβs.ɫ̃rak.ɫ̃o] [eks.ɫ̃én.so]
8. /y/ + /n/	veinte	[béỹñ.ɫ̃e]
9. /w/ + /k/	auxilio	[awk.sí.ɫ̃yo]
10. /w/ + /n/	aunque	[áw̃ɲ̃.ke]

Table 10.13. The structure of Spanish CC syllable codas

Nucleus	Coda	
	Consonant ₁	Consonant ₂
Syllable nucleus	/y/ /w/ /r/ /n/ /b/	/s/

**Table 11.1. The stressed Spanish graphemes
“i” and “u” in contact with non-high vowel phonemes**

Word	Vowel and stress combination	Correct pronunciation
1. panadería 2. maíz	í + ä ä + í	pa.na.de.[rí.a] ma.[ís]
3. esquíe 4. leído	í + ě ě + í	es.[kí.e] [le.í].do
5. río 6. oí	í + ö ö + í	[rí.o] [o.í]
7. continúa 8. ataúd	ú + ä ä + ú	con.ti.[nú.a] a.[ta.ú.ə]
9. continúe 10. reúne	ú + ě ě + ú	con.ti.[nú.e] [ře.ú].ne
11. actúo	ú + ö	ac[.tú.o]

Table 11.2. Spanish words with two contiguous vowel sounds in which neither is pronounced as a glide in formal and semi-formal speech registers

Vowel letters	Phoneme combination	Example	Phonetic transcription
1. “aa”	/aa/	Sahara	[sa.á.ra]
2. “ae”	/ae/	saeta	[sa.é.ʔa]
3. “ao”	/ao/	Laos	[l̞^á.os]
4. “ea”	/ea/	teatro	[t̞e.á.ʔro]
5. “oa”	/oa/	loar	[l̞^o.ár]
6. “ee”	/ee/	leer	[l̞^e.ér]
7. “eo”	/eo/	leonés	[l̞^e.o.nés]
8. “oe”	/oe/	poeta	[po.é.ʔa]
9. “oo”	/oo/	moho	[mó.o]

Table 11.3. Spanish words with two contiguous vowels in which the graphemes “i” and “u” are pronounced as glides

Vowel letters	Phoneme combination	Example	Phonetic transcription
1. “ie”	/ye/	siete	[syé.ɾe]
2. “ei”	/ey/	veinte	[béyn.ɾe]
3. “io”	/yo/	acción	[ak.syón]
4. “oi”	/oy/	oigo	[óy.ɣo]
5. “ia”	/ya/	farmacia	[far.má.sya]
6. “ai”	/ay/	caigo	[káy.ɣo]
7. “ue”	/we/	dueño	[dwe.ño]
8. “eu”	/ew/	deuda	[dew.ða]
9. “uo”	/wo/	cuota	[kwó.ta]
10. “ou”	/ow/	bou	[bów]
11. “ua”	/wa/	suave	[swá.βe]
12. “au”	/aw/	autor	[aw.tór]
13. “iu”	/yu/	ciudad	[syu.ðáð]
14. “ui”	/wi/	cuidado	[kwi.ðá.ðo]

Figure 11.1. The five vowel phonemes of Spanish shown according to the classifications of ‘high’ and ‘non-high’

High vowels	/i/		/u/
Non-high vowels	/e/	/a/	/o/

Table 11.4. Distinctive features for Spanish vowel and glide phonemes

[feature]	Vowels					Glides	
	/i/	/e/	/a/	/o/	/u/	/y/	/w/
[high]	+	-	-	-	+	+	+
[low]	-	-	+	-	-	-	-
[back]	-	-	-	+	+	-	+
[round]	-	-	-	+	+	-	+

Table 11.5. Spanish words with two contiguous vowels across word boundaries that are affected by the glide-formation rule

Vowel letters and phonemes	Example	Phonemic transcription	Phonetic transcription
1. “ie” /ie/	mi edad	/mi#eɖað/	[mye.ɖáɖ]
2. “ei” /ei/	se interesa	/se#i̯nteresa/	[sey̯n.te.ré.sa]
3. “io” /io/	si olvida	/si#oɫˈbiɖa/	[syoɫˈβí.ɖa]
4. “oi” /oi/	sentó y gritó	/sentó#i̯grito/	[se̯n.toy.yri.tó]
5. “ia” /ia/	mi amigo	/mi#a̯migo/	[mya.mí.yo]
6. “ai” /ai/	la irlandesa	/lˈa#i̯rɫˈa̯ndesa/	[lˈayr.lˈa̯n.ɖé.sa]
7. “ue” /ue/	su edad	/su#eɖað/	[swe.ɖáɖ]
8. “eu” /eu/	se ubica	/se#u̯bika/	[sew.βí.ka]
9. “uo” /uo/	caos u orden	/kaos#u̯orɔ̃den/	[ka.o.swor.ɖen]
10. “ou” /ou/	lo urgente	/lˈo#u̯rhente/	[lˈowr.hén.te]
11. “ua” /ua/	su ave	/su#a̯be/	[swá.βe]
12. “au” /au/	la humedad	/lˈa#u̯medað/	[lˈaw.me.ɖáɖ]
13. “iu” /iu/	mi único	/mi#u̯niko/	[myú.ni.ko]
14. “ui” /ui/	su interés	/su#i̯nteres/	[swi̯n.te.rés]

Table 11.6. Combinations of high vowels adjacent to non-high vowels across word boundaries that escape the glide-formation rule

Vowel letters	Phonemes	Example	Phonetic transcription
1. “íe”	/ie/	recibí estufas	[ʀe.si.βí.es.tú.fas]
2. “eí”	/ei/	se hincha	[se.ín.ça]
3. “ío”	/io/	perdí originales	[per.đí.o.ri.hi.ná.l̂es]
4. “oí”	/oi/	busco higos	[bús.ko.í.yos]
5. “ía”	/ia/	recibí anillos	[ʀe.si.βí.a.ní.yos]
6. “aí”	/ai/	la india	[l̂a.ín.ɟya]
7. “íu”	/iu/	recibí uvas	[ʀe.si.βí.ú.βas]
8. “úe”	/ue/	bambú esférico	[bam.bú.es.fé.ri.ko]
9. “eú”	/eu/	se hunde	[se.ún.ɟe]
10. “úo”	/uo/	bambú olvidado	[bam.bú.ol̂.βi.ɟá.ɟo]
11. “oú”	/ou/	lo hunde	[l̂o.ún.ɟe]
12. “úa”	/ua/	bambú antiguo	[bam.bú.aŋ.tí.ywo]
13. “aú”	/au/	la hunde	[l̂a.ún.ɟe]
14. “úi”	/ui/	bambú importante	[bam.bú.im.por.tán.ɟe]

Table 11.7. Spanish diphthongs within words

Diphthong	Example	Phonetic transcription
1. [ye]	siete	[syé.ʔe]
2. [ey]	veinte	[béyn.ʔe]
3. [yo]	acción	[ak.syón]
4. [oy]	oigo	[óy.ʔo]
5. [ya]	farmacia	[far.má.sya]
6. [ay]	caigo	[káy.ʔo]
7. [we]	dueño	[dwe.ño]
8. [ew]	deuda	[dew.ða]
9. [wo]	cuota	[kwó.ʔa]
10. [ow]	bou	[bów]
11. [wa]	suave	[swá.βe]
12. [aw]	autor	[aw.tór]
13. [yu]	ciudad	[syu.ða.ð]
14. [wi]	cuidado	[kwi.ða.ðo]

Table 11.8. Examples of Spanish triphthongs that appear across word boundaries

Words	Triphthong
1. cambia inv itaciones	[yay]
2. inopia hu mana	[yaw]
3. estudie ir landés	[yey]
4. pie ul ceroso	[yew]
5. cambió hi storia	[yoy]
6. limpió uñ ones	[yow]
7. antigua in stalación	[way]
8. antigua uni ón	[waw]
9. fue im posible	[wey]
10. fue ur gente	[wew]
11. antiguo im pulso	[woy]
12. antiguo ul traje	[wow]

Syllabification Rule #1:

A single consonant is always assigned to the onset position of the following syllable, i.e., [VCV] → [V.CV].

Table 11.9. Spanish words with single intervocalic consonants

Word	Transcription and syllabification
1. ata	[á.ʔa]
2. eje	[é.he]
3. ira	[í.ra]
4. oso	[ó.so]
5. uso	[ú.so]
6. haba	[á.βa]
7. bife	[bí.fe]
8. casa	[ká.sa]
9. mata	[má.ʔa]
10. mayo	[má.ʝo]
11. lago	[l̠á.ʝo]
12. carro	[ká.ʀo]
13. calle	[ká.ʝe]
14. macho	[má.ʧo]
15. patada	[pa.ʔá.ʧa]
16. barato	[ba.ra.ʔo]
17. calabaza	[ka.l̠á.βá.sa]

Syllabification Rule #2:

A sequence of two contiguous consonants is syllabified according to the following criteria:

- A. The two contiguous consonants are divided, with the first being assigned to the coda of the preceding syllable and the second to the onset position of the following syllable, i.e., [VCCV] — [VC.CV], except if the two consonants consist of one of twelve indivisible Spanish consonant clusters.
- B. If these two contiguous consonants are one of the twelve indivisible Spanish consonant clusters, then they are both assigned to the onset position of the following syllable, i.e., [VCCV] → [V.CCV].

Table 11.10. Spanish words with two intervocalic consonants that are assigned to different syllables

Word	Transcription and syllabification
1. auto	[áw.ʔo]
2. peine	[péy.ne]
3. alto	[ál.ʔo]
4. archivo	[ar.čí.βo]
5. hampa	[ám.pa]
6. indigno	[iŋ.đíγ.no]
7. innato	[in.ná.ʔo]
8. cesto	[sés.ʔo]
9. apto	[áp.ʔo]
10. abdicar	[aβ.đi.kár]
11. afgano	[af.γá.no]
12. azteca	[aθ.té.ka]
13. atmósfera	[aʔ.mós.fe.ra]
14. admitir	[ađ.mi.tír]
15. acto	[ák.ʔo]
16. lección	[l^ek.syón]
17. agnóstico	[aγ.nós.ti.ko]

Table 11.11. Spanish words with two intervocalic consonants assigned to the onset position of the following syllable

Indivisible CC onset	Word	Transcription and syllabification
1. /pr/	a pretar	[a. pre .tár]
2. /pl̩/	a plastar	[a. pl̩ as.tár]
3. /br/	e brio	[é. β ryo]
4. /bl̩/	o bligar	[o. β l̩i.yár]
5. /tr̩/	r etrato	[re. tr̩ á.t̩o]
6. /dr̩/	p odrar	[po. dr̩ ár]
7. /kr/	a creditar	[a. kre .ð̩i.tár]
8. /kl̩/	a clarar	[a. kl̩ a.rár]
9. /gr/	a gradecer	[a. gra .ð̩e.sér]
10. /gl̩/	i glesia	[i. gl̩ é.sya]
11. /fr/	r efreír	[re. fre .ír]
12. /fl̩/	r eflejo	[re. fl̩ é.ho]

Syllabification Rule #3:

A sequence of three adjacent consonants is divided according to the following criteria:

A. The first two of three contiguous consonants are assigned to the coda of the preceding syllable and the third to the onset position of the following syllable, i.e., [VCCCCV] → [VCC.CV], except if the last two consonants consist of one of the twelve indivisible Spanish consonant clusters.

B. If the second two of three contiguous intervocalic consonants are one of the twelve indivisible Spanish consonant clusters, then they are both assigned to the onset position of the following syllable and the first consonant serves as the coda of the preceding syllable, i.e., [VCCCCV] → [VC.CCV].

Table 11.12. Spanish [CCC] clusters that are syllabified [CC.C]

Word	Transcription and syllabification
1. a islar	[ays.ɫ̪áɾ]
2. ve inte	[béɲ.ɲe]
3. aun que	[áwŋ.ke]
4. aux ilio	[awk.sí.ɫyo]
5. pers picaz	[pers.pi.kás]
6. sol sticio	[sol̩s.tí.syo]
7. ins titivo	[ins.t̪iɲ.t̪í.βo]
8. trans porte	[trans.pór.ɲe]
9. ext enso	[eks.t̪én.so]
10. obs táculo	[obs.t̪á.ku.ɫo]

Table 11.13. Spanish [CCC] clusters that are syllabified [C.CC]

Indivisible CC onset	Word	Transcription and syllabification
1. /pr/	impresionante	[im.pre.syo.ná.ɲ.te]
2. /pl̩/	implicar	[im.pl̩.i.kár]
3. /br/	embrague	[em.βrá.ɣe]
4. /bl̩/	temblar	[t̩em.bl̩.ár]
5. /tr̩/	entrar	[eɲ.tr̩.ár]
6. /d̩r/	esdrújula	[es.ɖr̩.ú.hu.l̩.a]
7. /kr/	increíble	[iɲ.kre.í.βl̩.e]
8. /kl̩/	incluso	[iɲ.kl̩.ú.so]
9. /gr/	engrosar	[eɲ.gro.sár]
10. /gl̩/	inglés	[iɲ.gl̩.és]
11. /fr/	enfriar	[eɲ.fri.ár]
12. /fl̩/	influjo	[iɲ.fl̩.ú.ho]

Syllabification Rule #4:

In sequences of four consecutive consonants, the first two segments are always assigned to the coda position of the preceding syllable and the remaining two consonants become the onset of the following syllable, i.e., [VCCCCV] → [VCC.CCV].

Table 11.14. Spanish words with four intervocalic consonants

Word	Transcription and syllabification
1. instrumento	[ins.ɾru.mé̃n̩.ɾto]
2. construcción	[kons.ɾruk.syón]
3. transplante	[ɾrans.pl̩á̃n̩.ɾte]
4. extracto	[eks.ɾrák.ɾto]
5. abstracto	[aβs.ɾrák.ɾto]
6. obstrucción	[oβs.ɾruk.syón]

Syllabification Rule #5:

Contiguous vowel phonemes across word boundaries are assigned to different syllables unless they form a diphthong or triphthong.

Table 11.15. Representative Spanish lexical items with contiguous vowel graphemes and their corresponding phonemic and phonetic transcriptions in formal discourse

Word	Phonemic representation	Phonetic representation
1. Sahara	/saara/	[sa.á.ra]
2. teatro	/teatro/	[te.á.ɾo]
3. moho	/moo/	[mó.o]
4. leonés	/l ^ˆ eones/	[l ^ˆ e.o.nés]
5. leer	/l ^ˆ eer/	[l ^ˆ e.ér]
6. esquíe	/eskie/	[es.kí.e]
7. leído	/l ^ˆ eiðo/	[l ^ˆ e.í.ðo]
8. río	/río/	[rí.o]
9. continúe	/kontinue/	[kon.ɾi.nú.e]
10. actúo	/aktuo/	[ak.tú.o]
11. ataúd	/aɾaud/	[a.ɾa.úɛ]
12. siete	/syete/	[syé.ɾe]
13. acción	/aksyon/	[ak.syón]
14. farmacia	/farmasya/	[far.má.sya]
15. deuda	/ðewða/	[ðéw.ða]
16. cuota	/kwota/	[kwó.ɾa]
17. autor	/awtor/	[aw.ɾór]
18. ciudad	/syudaɟ/	[syu.ɟáɟ]
19. cuidado	/kwidaɟo/	[kwi.ɟá.ɟo]

Figure 11.2. Steps to follow to syllabify and phonetically transcribe Spanish breath groups

1. Erase or remove all word boundaries from the breath group.
2. Phonetically transcribe the breath group with word boundaries removed.
3. Resyllabify the phonetic transcription following Syllabification Rules #1–5 as if it were one single word.

Table 11.16. Differences in the number of symbols between phonetic symbols and letters of the Spanish alphabet

Letter of alphabet	Phonemic symbol(s)	Standard Spanish phonetic symbol(s)
1. “h”	/Ø/	[Ø]
2. “x”	/ks/ or /gs/	[ks] or [ɣs]
3. “ch”	/č/	[č]
4. “rr”	/ř/	[ř]
5. “ll”	/y/ or /ʎ/	[y] or [ʎ]
6. “u” after “g” and before “e” or “i”	/Ø/	[Ø]

Table 11.17. Spanish lexemes without one-to-one letter-to-sound correspondences

Standard orthography	Orthographic syllabification	Syllabification of phonetic transcription
1. alcohol	al.co.hol	[al̞̂.ko.ól̞̂]
2. texto	tex.to	[t̞éks.t̞o]
3. examen	e.xa.men	[eɣ.sá.men]
4. carro	ca.rro	[ká.řo]
5. calle	ca.lle	[ká.ye]
6. calle	ca.lle	[ká.ʎe]
7. muchacho	mu.cha.cho	[mu.čá.čo]
8. guerra	gue.rra	[gé.řa]
9. guitarra	gui.ta.rra	[gi.t̞á.řa]

Figure 12.1. Relative airstream obstruction and the five families of sounds

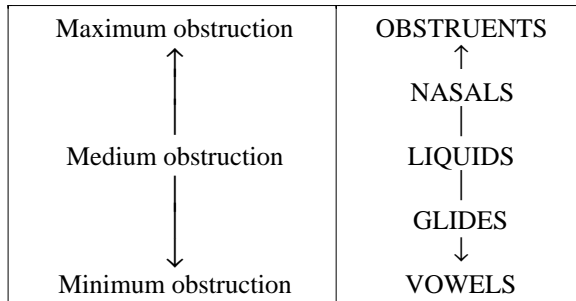


Figure 12.2. Subdivisions of obstruents according to the parameter of relative airstream obstruction

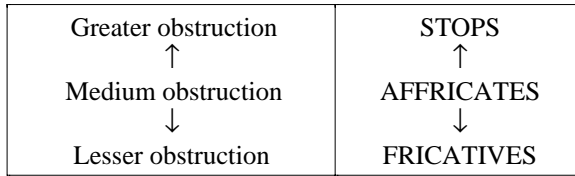


Figure 12.3. Facial cross-section illustrating the position of the articulatory apparatus in the production of /p/

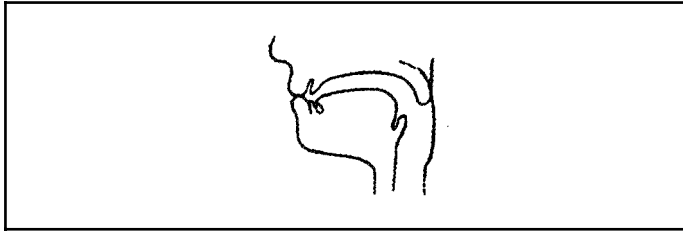


Table 12.1. Phonetic distribution of Spanish /p/

Phonetic environment	Lexical item	Phonetic transcription
Word-initial	p oco	[p]o.co
Word-final	*****	*****
Syllable-initial	to p e	to.[p]e
Syllable-final	ap t o	a[p].to

Table 12.2. Distribution of Spanish and English /p/ phonemes

Phonetic environment	English	Spanish
After /s/ in same syllable	spin [p]	*****
Syllable-final	hopeless [p]	apto [p]
Breath-group-final	top [p] or [p ^h]	*****
Word-final (within breath group)	top [p]	*****
Syllable-initial	impose [p ^h]	tope [p]

Figure 12.4. Facial cross-section illustrating the position of the articulatory apparatus in the production of Spanish dental /t/

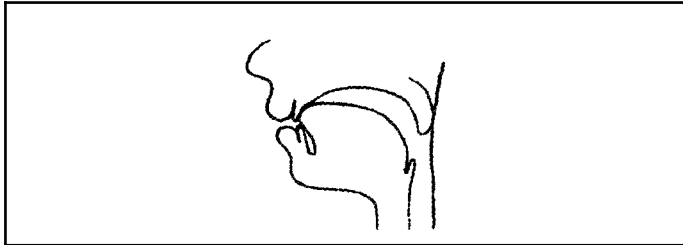


Table 12.3. Phonetic distribution of Spanish /t/

Phonetic environment	Lexical item	Phonetic transcription
Word-initial	tomo	[t̪]o.mo
Word-final	*****	*****
Syllable-initial	mata	ma.[t̪]a
Syllable-final	atmósfera	a[t̪].mós.fe.ra

Table 12.4. Examples of possible miscommunication due to inappropriate tapping of Spanish /t/ and /d/

Word	Phonemic representation	Incorrect pronunciation (with /t/ and /d/ tapping)	Semantic interpretation (due to /t, d/ tapping)	Correct pronunciation
1. moto	/mo ^o t ^o /	*[mó.ro]	moro	[mó.t ^o]
2. pata	/pa ^a t ^a /	*[pá.ra]	para	[pá.t ^a]
3. lata	/l ^a á ^a t ^a /	*[l ^a .ra]	Lara	[l ^a .t ^a]
4. modo	/mo ^o d ^o /	*[mó.ro]	moro	[mó.d ^o]
5. todo	/t ^o d ^o /	*[tó.ro]	toro	[t ^o .d ^o]
6. cada	/ka ^a d ^a /	*[ká.ra]	cara	[ká.d ^a]

Table 12.5. Distribution of Spanish and English /t/ phonemes

Phonetic environment	English	Spanish
After /s/ in same syllable	stop [t]	*****
Syllable-final	atlas [t]	atmósfera [t̟]
Breath-group-final	bat [t] or [tʰ]	*****
Word-final (within breath group)	cat [t]	*****
Syllable-initial	intact [tʰ]	intención [t̟]
Intervocalic position (with stress on preceding vowel)	water [r]	mata [t̟]

Figure 12.5. Facial cross-section illustrating the position of the articulatory apparatus in the production of /k/

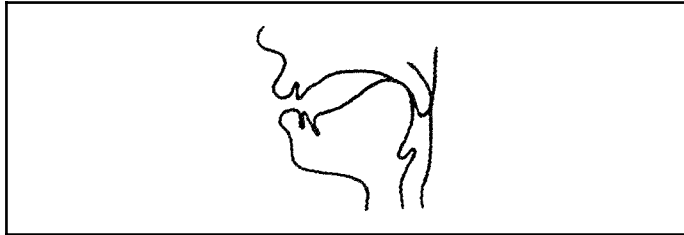


Table 12.6. Phonetic distribution of Spanish /k/

Phonetic environment	Lexical item	Phonetic transcription
Word-initial	como	[k]o.mo
Word-final	*****	*****
Syllable-initial	pe que ño	pe.[k]e.ño
Syllable-final	actuar	a[k].tuar

Table 12.7. Orthographic Representations of Spanish /k/

Phonetic environment	Spelling	Example	Phonetic transcription
Before /a/	“c”	carta	[k]ar.ta
Before /o/	“c”	como	[k]o.mo
Before /u/	“c”	culpa	[k]ul.pa
Before consonant	“c”	clave	[k]la.ve
Before /e/	“qu”	q uedar	[k]e.dar
Before /i/	“qu”	q uitar	[k]i.tar

Table 12.8. Distribution of Spanish and English /k/ phonemes

Phonetic environment	English	Spanish
After /s/ in same syllable	skin [k]	*****
Syllable-final	active [k]	activo [k]
Breath-group-final	back [k] or [k ^ˀ]	*****
Word-final (within breath group)	back [k]	*****
Syllable-initial	include [k ^h]	saca [k]

Figure 12.6. Facial cross-section illustrating the position of the articulatory apparatus in the production of /č/

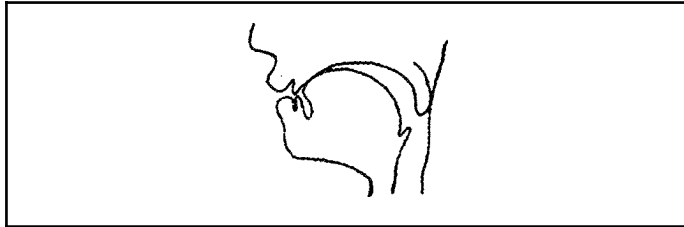


Table 12.9. Phonetic distribution of Spanish /č/

Phonetic environment	Lexical item	Phonetic transcription
Word-initial	chico	[č]i.co
Word-final	*****	*****
Syllable-initial	mucho	mu.[č]o
Syllable-final	*****	*****

Table 12.10. Distribution of Spanish /č/ and English /č^h/ phonemes

Phonetic environment	English	Spanish
Before stressed vowel	chin [č ^h]	chico [č]
Syllable-initial	pinching [č ^h]	mucho [č]
Word-final	much [č]	*****
Breath-group-final	much [č]	*****
Syllable-final	matchless [č]	*****

Figure 13.1. Facial cross-section illustrating the position of the articulatory apparatus in the production of /b/

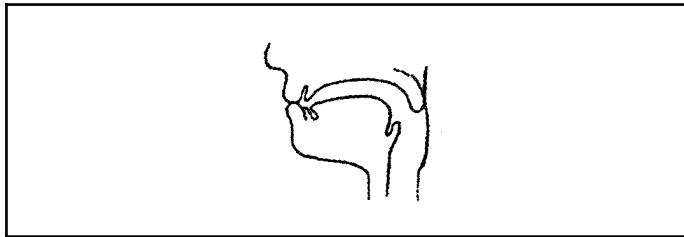


Table 13.1. Distribution of Spanish phoneme /b/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	bobo la boca en boca	/bobo/ /l̞ [^] a#boka/ /en#boka/
Word-final	*****	*****
Syllable-initial after vowel	rab o	/r̞ ab o/
Syllable-initial after consonant	convencer alba embrague	/kon b enser/ /al̞ [^] b a/ /em b rage/
Syllable-final	ob t ener	/ob t ener/

Table 13.2. The phonetic realizations of the principal allophones of Spanish /b/

Phonetic environment	Lexical item	Phonemic transcription	Phonetic transcription
Word-initial	bobo la boca en boca el bobo un bobo	/bobo/ /l̞ ^ˆ a#boka/ /en#boka/ /el̞ ^ˆ #bobo/ /un#bobo/	[bó.βo] [l̞ ^ˆ a.βó.ka] [em.βó.ka] [el̞ ^ˆ .βó.βo] [um.βó.βo]
Word-final	*****	*****	*****
Syllable-initial after vowel	rabo	/r̞abo/	[r̞á.βo]
Syllable-initial after consonant	convencer	/konβenser/	[kom.βen.sér]
Syllable-final	obtener	/ob̞tener/	[oβ̞.te.nér]

Table 13.3. Environments of the principal phonetic realizations of the phoneme /b/

Surface realization	Environment	Example	Phonetic transcription
Stop [b]	1. After a pause 2. After a nasal	boca un baúl convencer	[b ^h ó.ka] [um.ba.úl ^h] [kom.ben.sér]
Fricative [β]	3. Elsewhere	el bobo la boca rabo obtener	[el ^h .βo.βo] [l ^h a.βó.ka] [rã.βo] [oβ.ɸe.nér]

Table 13.4. Pronunciation of the Spanish graphemes “b” and “v”

Word	Phonemic transcription	Phonetic transcription
1. baca	/baca/	[bá.ka]
2. vaca	/baca/	[bá.ka]
3. tubo	/tubo/	[tú.βo]
4. tuvo	/tubo/	[tú.βo]

Table 13.5. Distribution of the phonetic variants of standard Spanish and English /b/ phonemes

Phonetic environment	English	Spanish
Word-initial	bit [b]	vaca [b]
Word-final	tab [b]	*****
Breath-group-final	tab [b]	*****
Syllable-initial after vowel	abuse [b]	rabo [β]
Syllable-initial after consonant	imbed [b]	convencer [b] alberca [β]
Syllable-final	abstract [b]	obtener [β]

Figure 13.2. Facial cross-section illustrating the position of the articulatory apparatus in the production of /d/

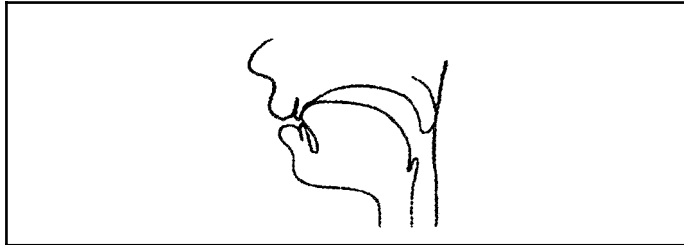


Table 13.6. Distribution of the Spanish phoneme /d/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	dedo la dama con dolor	/d̥e̞do/ /l̥a#̞d̥ama/ /kon#̞d̥ol̥or/
Word-final	verdad	/berd̥ad̥/
Syllable-initial after vowel	nada	/na̞d̥a/
Syllable-initial after consonant	mandar aldea el día un día	/mand̥ar/ /al̥#̞d̥ea/ /el̥#̞d̥ia/ /un#̞d̥ia/
Syllable-final	admitir	/ad̥mit̥ir/

Table 13.7. The phonetic realizations of the principal standard Spanish allophones of the phoneme /d/

Phonetic environment	Lexical item	Phonemic transcription	Phonetic transcription
Word-initial	dedo la dama los días un día el día	/d̥e̞do/ /l̥a#d̥ama/ /l̥os#d̥ias/ /un#d̥ia/ /el̥#d̥ia/	[d̥é.ðo] [l̥a.d̥á.ma] [l̥os.d̥í.as] [un.d̥í.a] [el̥.d̥í.a]
Word-final	verdad	/berd̥ad̥/	[ber.d̥á.d̥]
Syllable-initial after vowel	nada	/nað̥a/	[ná.ð̥a]
Syllable-initial after consonant	mandar aldea arder esdrújula	/mand̥ar/ /al̥d̥ea/ /ar̥der/ /esd̥ruhu.l̥a/	[man.d̥ár] [al̥.d̥é.a] [ar̥.d̥ér] [es.d̥rú.hu.l̥a]
Syllable-final	admitir	/ad̥mi.t̥ir/	[a.d̥.mi.t̥ír]

Table 13.8. Environments of the principal phonetic realizations of the phoneme /d/

Surface realization	Environment	Example	Phonetic transcription
Stop [d̟]	1. After a pause 2. After a nasal 3. After /l̟/	d ar un d ía al d ea	[d̟ár] [un̟.d̟í.a] [al̟̠.d̟é.a]
Fricative [d̠]	4. Elsewhere	ar d er los d edos na d a a d mitir	[ar.d̠ér] [l̟̠os.d̠é.d̠os] [ná.d̠a] [a.d̠.mi.t̠ír]

Figure 13.3. Facial cross-section illustrating the position of the articulatory apparatus in the production of /g/

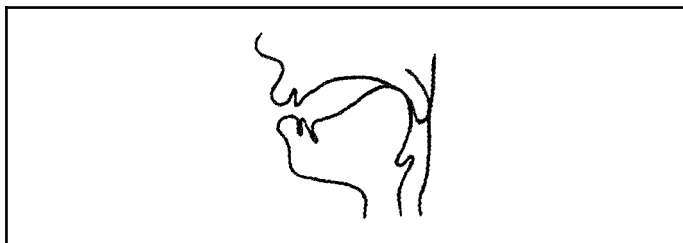


Table 13.9. Distribution of Spanish phoneme /g/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	gago la gata un gato	/gago/ /l̞a#gata/ /un#gato/
Word-final	*****	*****
Syllable-initial after vowel	lago	/l̞a#go/
Syllable-initial after consonant	vengo el gato un gato	/bengo/ /el̞#gato/ /un#gato/
Syllable-final	agnóstico	/agnostiko/

Table 13.10. The phonetic realizations of the principal allophones of Spanish /g/

Phonetic environment	Lexical item	Phonemic transcription	Phonetic transcription
Word-initial	gago la gata un gato	/gago/ /l̞a#gata/ /un#gato/	[gá.ɣo] [l̞á.yá.ta] [un.gá.to]
Word-final	*****	*****	*****
Syllable-initial after vowel	lago	/l̞ágo/	[l̞á.ɣo]
Syllable-initial after consonant	vengo algo engordar	/bengo/ /al̞go/ /engordar/	[béŋ.go] [ál̞.ɣo] [eŋ.gor.ðár]
Syllable-final	agnóstico	/agnost̞iko/	[aɣ.nós.ɰi.ko]

Table 13.11. Environments of the principal phonetic realizations of the phoneme /g/ in standard Spanish

Surface realization	Environment	Example	Phonetic transcription
Stop [g]	1. After a pause 2. After a nasal	gato un gato	[gá.ʔo] [uŋ.gá.ʔo]
Fricative [ɣ]	3. Elsewhere	el gato la gata lago algo agnóstico	[el̞̃.ɣá.ʔo] [l̞̃a.ɣá.ʔa] [l̞̃á.ɣo] [ál̞̃.ɣo] [aɣ.nós.ʔi.ko]

Table 13.12. Orthographic representations of the Spanish phoneme /g/

Word	Grapheme(s)	Phonetic transcription
1. guerra	gu + e	[g ^é .řa]
2. guitarra	gu + i	[gi.řá.řa]
3. guapo	g + ua	[gwá.po]
4. antiguo	g + uo	[a ^ñ .tí.ɣwo]
5. gato	g + a	[gá.řo]
6. golpe	g + o	[gól ^ˆ .pe]
7. gusto	g + u	[gús.řo]
8. gloria	g + consonant	[g ^l ó.rya]
9. grande	g + consonant	[grá ^ñ .de]

Figure 14.1. Facial cross-section illustrating the position of the articulatory apparatus in the production of /f/

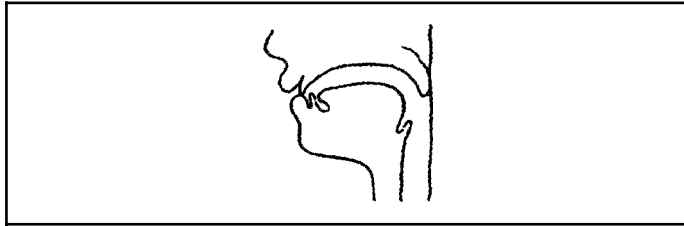


Table 14.1. Distribution of Spanish phoneme /f/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	foca	/foka/
Word-final	*****	*****
Syllable-initial after vowel	gafas	/gafas/
Syllable-initial after consonant	enfermo	/enfermo/
Syllable-final	afgano	/afgano/

Table 14.2. Distribution patterns of the principal phonetic realizations of the phoneme /f/

Word	Dialects without [ϕ] and [v] allophones	Dialects with [ϕ] and [v] in complementary distribution	Dialects with [ϕ] and [v] in free variation
foca	[fó.ka]	[fó.ka]	[fó.ka]
gafas	[gá.fas]	[gá.fas]	[gá.fas]
enfermo	[em̩.fér.mo]	[em̩.fér.mo]	[em̩.fér.mo]
afligir	[a.fl̩i.hír]	[a.fl̩i.hír]	[a.fl̩i.hír]
afgano	[af.ɣá.no]	[av.ɣá.no]	[af.ɣá.no] or [av.ɣá.no]
fuerte	[fwér.ɾe]	[ϕwér.ɾe]	[fwér.ɾe] or [ϕwér.ɾe]
fui	[fwí]	[ϕwí]	[fwí] or [ϕwí]

Figure 14.2. Facial cross-section illustrating the position of the articulatory apparatus in the production of lamino-alveolar /s/

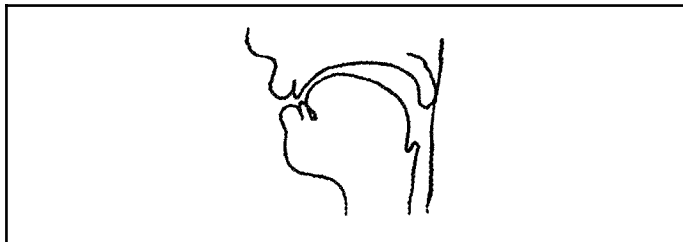


Figure 14.3. Facial cross-section illustrating the configuration of the vocal apparatus in the production of apico-alveolar /s/

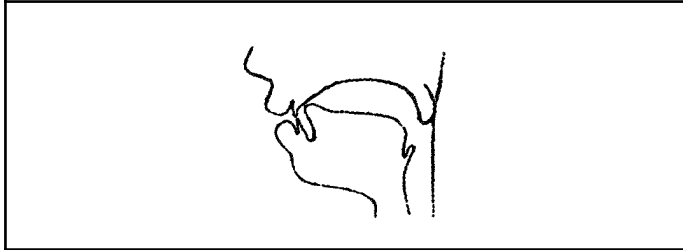


Figure 14.4. Facial cross-section illustrating the position of the articulatory apparatus in the production of alveolar retroflex /ʂ/

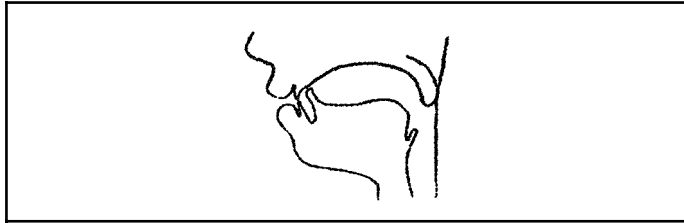


Table 14.3. Distribution of Spanish coronal /S/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	sol	/Soɫ̺̃/
Word-final	tos	/tõ̺s/
Syllable-initial after vowel	masa	/maSa/
Syllable-initial after consonant	mensaje	/menSahe/
Syllable-final	espesa	/eSpeSa/

Table 14.4. Coronal /S/ voicing assimilation in /S/-retention dialects

Environment	Word	Phonemic transcription	Phonetic transcription
Word-initial	sol	/Soɫˀ/	[sólˀ]
Syllable-initial after vowel	masa	/maSa/	[má.sa]
Syllable-initial after consonant	mensaje	/menSahe/	[men.sá.he]
Word-final before vowel	los ojos	/lˀoS#ohoS/	[lˀo.só.hos]
Word-final before consonant	tos ferina los tíos tos grave los días los huevos	/tˀoS#ferina/ /lˀoS#tˀioS/ /tˀoS#grave/ /lˀoS#días/ /lˀoS#weboS/	[tˀos.fe.rí.na] [lˀos.tˀí.os] [tˀoz#ɣrá.βe] [lˀoz.ɗí.as] [lˀoz.wé.βos]
Syllable-final before consonant	asta lasca desde isla mismo	/aSɽa/ /lˀaSka/ /ɗeSɗe/ /iSlˀa/ /miSmo/	[ás.ɽa] [lˀás.ka] [ɗéz.ɗe] [íz.lˀa] [míz.mo]

Figure 14.5. Consonant strength scale of voiceless allophones of Spanish lamino-alveolar /s/ and apico-alveolar /ʃ/

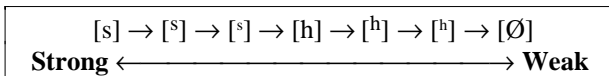


Figure 14.6. Different free-variant articulations of lamino-alveolar /s/ along a consonant strength continuum

casas	
Strongest /s/	[ká.sas]
↑	[ká.sa ^{s̺}]
↑	[ká.sa ^{s̺̪}]
↑	[ká.sa ^h]
↑	[ká.sa ^{h̺}]
↑	[ká.sa ^{h̺̪}]
↓	[ká.sa ^{h̺̪}]
↓	[ká.sa ^{h̺}]
↓	[ká.sa ^h]
↓	[ká.sa [∅]]
Weakest /s/	

Table 14.5. Pronunciation of lamino-alveolar /s/ and apico-alveolar /ʃ/ in phonetic environments of retention in weakening dialects

Environment	Word	Phonemic transcription	Phonetic transcription
Word-initial	sol	/Sol̩̃/	[sól̩̃]
Syllable-initial after vowel	masa	/maSa/	[má.sa]
Syllable-initial after consonant	mensaje	/menSahe/	[men.sá.he]

Table 14.6. Pronunciation of lexemes with lamino-alveolar /s/ and apico-alveolar /ʃ/ in retention, aspiration, or deletion environments in weakening dialects

Word(s)	Free-variant phonetic transcriptions		
Breath-group-final			
	/s/ retention	/s/ aspiration	/s/ deletion
gatos	[gá.ʃos]	[gá.ʃoh]	[gá.ʃoØ]
Word-final before vowel			
	/s/ retention	/s/ aspiration	/s/ deletion
los ojos	[l̠o.só.hos]	[l̠o.hó.hoh]	[l̠o.Øó.hoØ]
Word-final before consonant			
	/s/ retention	/s/ aspiration	/s/ deletion
tos ferina	[ʃos.fe.rí.na]	[ʃoh.fe.rí.na]	[ʃoØ.fe.rí.na]
los tíos	[l̠os.ʃí.os]	[l̠oh.ʃí.oh]	[l̠oØ.ʃí.oØ]
tos grave	[ʃos.grá.βe]	[ʃoh.grá.βe]	[ʃoØ.ɣrá.βe]
los días	[l̠os.ʃí.as]	[l̠oh.ʃí.ah]	[l̠oØ.ʃí.aØ]
los huevos	[l̠os.wé.βos]	[l̠oh.wé.βoh]	[l̠oØ.wé.βoØ]
Syllable-final before consonant			
	/s/ retention	/s/ aspiration	/s/ deletion
asta	[ás.ʃa]	[áh.ʃa]	[áØ.ʃa]
lasca	[l̠ás.ka]	[l̠áh.ka]	[l̠áØ.ka]
desde	[dés.ʃe]	[déh.ʃe]	[déØ.ʃe]
isla	[ís.l̠a]	[íh.l̠a]	[íØ.l̠a]
mismo	[mís.mo]	[míh.mo]	[míØ.mo]

Table 14.7. Phonetic variants of the phoneme /s/ in weakening and voicing assimilation dialects

Retention [s]	Aspiration [h]	Deletion [Ø]
Retention/Voicing [z]	Aspiration/Voicing [f]	Deletion [Ø]

Table 14.8. Examples of Spanish lexemes with different allophones of /s/-weakening/voicing assimilation dialects

Word(s)	Phonetic representations		
los días	[l ^ˆ os.ðí.as]	[l ^ˆ oh.ðí.ah]	[l ^ˆ oØ.ðí.aØ]
	[l ^ˆ oz.ðí.as]	[l ^ˆ of.ðí.ah]	[l ^ˆ oØ.ðí.aØ]
desde	[ðés.ðe]	[ðéh.ðe]	[ðéØ.ðe]
	[ðéz.ðe]	[ðéfi.ðe]	[ðéØ.ðe]

Table 14.9. Orthographic representations of the phoneme /S/ in Spanish *seseo* dialect areas

Orthographic representation	Examples
“s”	sato, compás, masa, isla
“z”	zapato, paz, caza, juzgar
“ce”	cena, cerca, veces, paces
“ci”	cigarro, cine, oficina, cinta

Table 14.10. Orthographic representations of the phoneme /ʃ/ in Spanish *distinción* dialect areas

Orthographic representation	Examples
“s”	sato, compás, masa, isla

Figure 15.1. Facial cross-section illustrating the position of the articulatory apparatus in the production of /x/

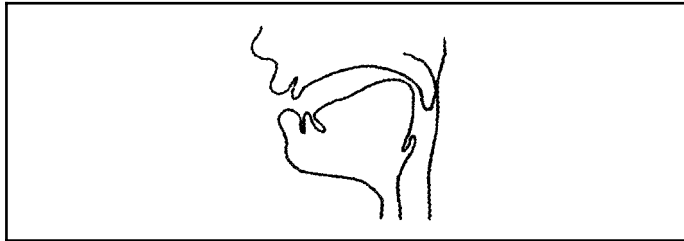


Figure 15.2. Facial cross-section illustrating the position of the articulatory apparatus in the production of /χ/

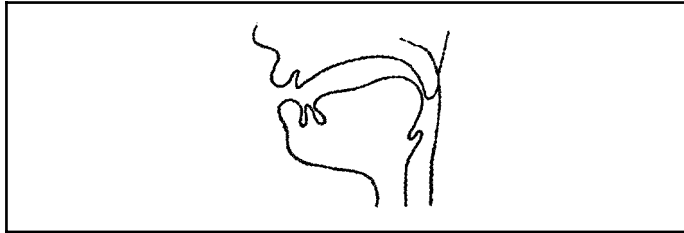


Table 15.1. Distribution of Spanish phoneme /h/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	gente	/hẽtẽ/
Syllable-initial after vowel	eje	/ehẽ/
Syllable-initial after consonant	álgebra	/al'hebra/
Word-final	(reloj)	(/rẽl'oh/)
Syllable-final	*****	*****

Table 15.2. Orthographic representations of the Spanish phonemes /h/, /x/, and /χ/

Spelling	Examples
“j”	bajar, jerga, jinete, cajón, jugar
“g” before “e”	gente, escoger, genio, general, gemir
“g” before “i”	gimnasio, gitano, dirigir, afligido, agitar

Figure 15.3. Facial cross-section illustrating the position of the articulatory apparatus in the production of /θ/

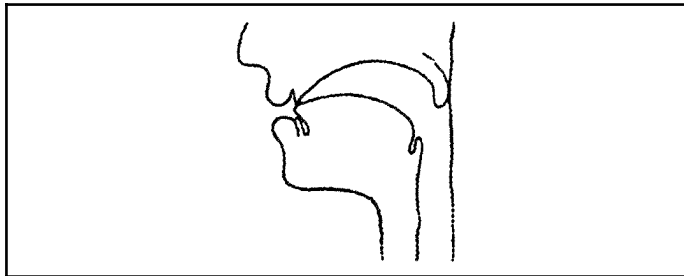


Table 15.3. Distribution of Spanish phoneme /θ/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	cerca	/θerka/
Word-final	paz	/paθ/
Syllable-initial after vowel	cenicero	/θeniθero/
Syllable-initial after consonant	alzar	/al ^ˆ θar/
Syllable-final	izquierdo	/iθkyerðo/

Table 15.4. Voicing assimilation of the phoneme /θ/

Position	Word	Phonemic transcription	Phonetic transcription
Word-initial	zorro	/θo̞ro/	[θó.̞ro]
Syllable-initial after vowel	caza	/kaθa/	[ká.θa]
Syllable-initial after consonant	alzar	/al ^ˆ θar/	[al ^ˆ .θár]
Word-final before vowel	paz árabe	/paθ#arabe/	[pa.θá.ra.βe]
Word-final before consonant	paz cubana paz chilena paz vasca maíz largo en vez de	/paθ#kubana/ /paθ#čil ^ˆ ena/ /paθ#baska/ /maiθ#l ^ˆ argo/ /en#beθ#de/	[paθ.ku.βá.na] [paθ.či.l ^ˆ é.na] [pað.βás.ka] [ma.íð.l ^ˆ ár.ɣo] [em.béð.ðe]
Syllable-final before consonant	azteca mezcla mezquita noviazgo azre maznar juzgar	/aθteka/ /meθkl ^ˆ a/ /meθkita/ /nobiaθgo/ /aθre/ /maθnar/ /xuθgar/	[aθ.té.ka] [méθ.kl ^ˆ a] [meθ.kí.ʦa] [no.βyáð.ɣo] [áð.re] [mað.nár] [xuð.ɣár]

Table 15.5. Orthographic representations of the Spanish phoneme /θ/

Spelling	Examples
“z” before vowels	zapato, (zeta), (zirconio), zona, azúcar
Final “z”	paz, vez, lápiz, maíz, atroz
“ce”	cena, cerca, cebolla, centro, cereza
“ci”	cita, cine, cisne, cinco, ciruela

Figure 16.1. Facial cross-section illustrating the position of the articulatory apparatus in the production of /y/

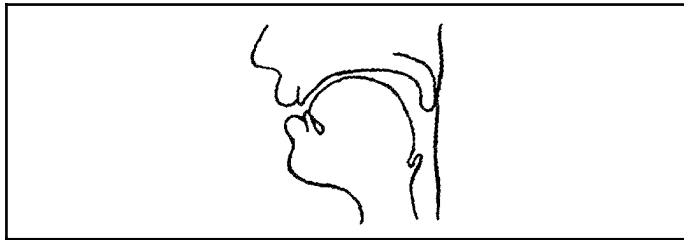


Table 16.1. Distribution of Spanish phoneme /y/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	yeso	/y ɛ so/
Word-final	*****	*****
Syllable-initial after vowel	hoyuelo mayo	/o y uel ^o / /ma y o/
Syllable-initial after consonant	inyección	/in y eksion/
Syllable-final	*****	*****

Figure 16.2. Consonant strength scale of allophones of the Spanish phoneme /y/

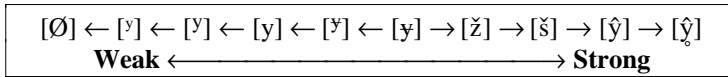


Table 16.2. Phonetic description of allophones of the phoneme /y/

Phonetic symbol	Phonetic description
1. [Ø]	Deletion or phonetic zero
2. [ʏ]	Severely weakened voiced palatal glide
3. [ɥ]	Weakened voiced palatal glide
4. [y]	Voiced palatal glide
5. [ʏ̞]	Weakened voiced palatal slit fricative
6. [ɣ]	Voiced palatal slit fricative
7. [ʒ]	Voiced palato-alveolar grooved fricative
8. [š]	Voiceless palato-alveolar grooved fricative
9. [j̥]	Voiced palatal affricate
10. [j̰]	Voiceless palatal affricate

Table 16.3. Different phonetic realizations of *mayo*, *caballo*, and *hierba* in *žeísmo* and *šeísmo*

Representative lexical items		
mayo	caballo	hierba
[má.žo]	[ka.βá.žo]	[yér.βa]
[má.šo]	[ka.βá.šo]	
[má.ŷo]	[ka.βá.ŷo]	
[má.ŷo]	[ka.βá.ŷo]	
[má.jo]	[ka.βá.jo]	
[má.čo]	[ka.βá.čo]	

Table 16.4. Orthographic representations of the Spanish phoneme /y/

Spelling	Examples
“y”	haya, yeso, rayita, arroyo, yunque, inyección, cónyuge, enyesado, conyugal, enyugar
“ll”	llana, llenar, allí, llorar, lluvia, conllevar, enllantar
“hi” before “e”	hielo, hierba, hiedra, hiena, hierro
“hi” before “a”	hiato, hialografía, hialino, hialúrgico, hialurgia
“hi” before “o”	hiogloso, hioides

Figure 16.3. Facial cross-section illustrating the position of the articulatory apparatus in the production of /w/

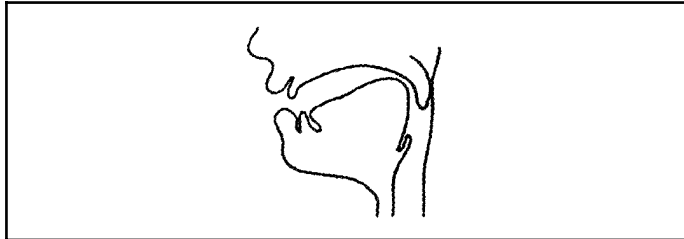


Table 16.5. Distribution of Spanish phoneme /w/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	h ueso	/weso/
Word-final	*****	*****
Syllable-initial after vowel	na h uatl	/nawatl̩̄/
Syllable-initial after consonant	des h uesar	/deswesar/
Syllable-final	*****	*****

Figure 16.4. Consonant strength scale of allophones of the Spanish phoneme /w/

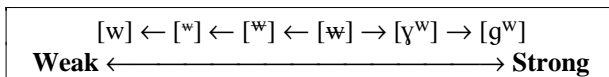


Table 16.6. Phonetic description of allophones of the phoneme /w/

Phonetic symbol	Phonetic description
1. [w]	Voiced labio-velar glide
2. [w [*]]	Severely weakened voiced bilabio-velar slit fricative
3. [w ^w]	Weakened voiced bilabio-velar slit fricative
4. [w]	Voiced bilabio-velar slit fricative
5. [y ^w]	Voiced rounded bilabio-velar slit fricative
6. [g ^w]	Voiced rounded bilabio-velar stop

Table 16.7. Different phonetic realizations of the lexeme *hueso* found among Spanish speakers

Representative lexical items	
hueso	los huesos
[wé.so]	[l [^] os.wé.sos]
[^w é.so]	[l [^] os. ^w é.sos]
[^w é.so]	[l [^] os. ^w é.sos]
[wé.so]	[l [^] os.wé.sos]
[g ^w é.so]	*****
*****	[l [^] os.ɣ ^w é.sos]

Table 16.8. Orthographic representations of the Spanish phoneme /w/

Spelling	Examples
“hu” native vocabulary	hueso, huida, huerta, hueco, huérfano
“w” borrowings	whisky, Wáshington, wáter, Hawaii, Wili

Figure 17.1. Facial cross-section illustrating the position of the articulatory apparatus in the production of /m/

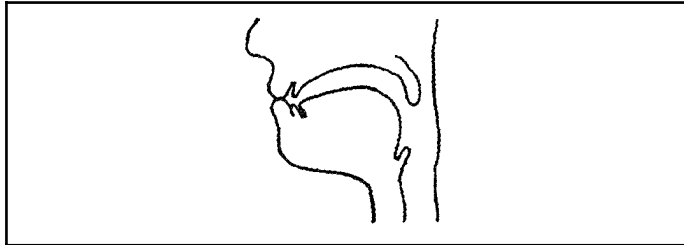


Table 17.1. Distribution of Spanish phoneme /m/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	más	/mas/
Word-final	*****	*****
Syllable-initial after vowel	cama	/kama/
Syllable-initial after consonant	almendra	/al [^] mendra/
Syllable-final before nasal consonant	gimnasio	/himnasyo/

Table 17.2. Orthographic representations of the Spanish phoneme /m/

Spelling	Examples
Word-initial	más, medir, mismo, montaña, muerto
Syllable-initial after vowel	cama, remar, imitar, omitir, humedad
Syllable-initial after consonant	almendra, mismo, inmediato, hermano, asma

Figure 17.2. Facial cross-section illustrating the position of the articulatory apparatus in the production of /n/

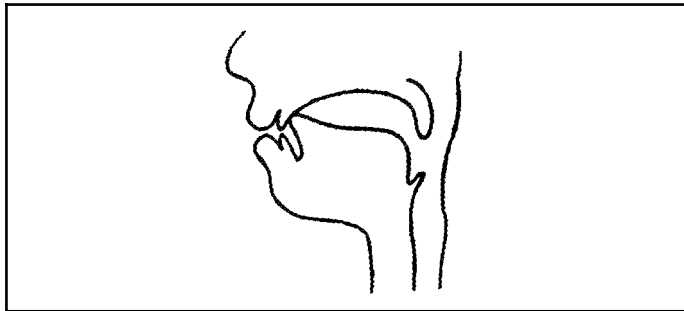


Table 17.3. Distribution of Spanish phoneme /n/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	nada	/nada/
Word-final	pan	/pan/
Syllable-initial after vowel	bueno	/bueno/
Syllable-initial after consonant	asno	/asno/
Syllable-final	insistir hombre sembrar impresión umbral	/insistir/ /onbre/ /senbrar/ /inpresion/ /unbral ^ˆ /

Table 17.4. Phonetic symbols used to represent different Spanish nasal allophones and their phonetic descriptions

Phonetic symbol	Phonetic description
[m]	(voiced) bilabial nasal
[m̲]	(voiced) labio-dental nasal
[ɲ̠]	(voiced) laminal interdental nasal
[ɲ̟]	(voiced) apico-dental nasal
[n]	(voiced) apico-alveolar nasal
[ɲ̠̠]	(voiced) laminal retroflex nasal
[ɲ̟̟]	(voiced) laminal palato-alveolar nasal
[ɲ̟̟̟]	(voiced) laminal palatal nasal
[ŋ]	(voiced) dorso-velar nasal

Table 17.5. The phonemic and phonetic realizations of Spanish words with /n/ preceding bilabial consonants

Word(s)	Phonemic representation	Phonetic representation
imposible	/inposibl̞e/	[im.po.sí.βl̞e]
imbécil	/inbesil̞/	[im.bé.sil̞]
envidia	/enbidya/	[em.bí.ɸya]
inmediato	/inmedyaɾo/	[im.me.ɸyá.ɾo]
un poco	/un#poko/	[um.pó.ko]
un burro	/un#buño/	[um.bú.ño]
un vaso	/un#baso/	[um.bá.so]
un maestro	/un#maestro/	[um.ma.és.ɾo]

Table 17.6. Progressive and regressive assimilation in Spanish





Word(s)	Phonemic representation	Phonetic realization
condición	/n/ phoneme is alveolar. /kon̄ḁisyon/ /ḁ/ phoneme is a stop.	/n/ becomes dental via regressive nasal place assimilation.  [kon̄ḁi.syón]  /ḁ/ remains a stop due to progressive assimilation of [-cont] of /n/.
un día	/n/ phoneme is alveolar. /un#ḁia/ /ḁ/ phoneme is a stop.	/n/ becomes dental via regressive nasal place assimilation.  [un̄ḁí.a]  /ḁ/ remains a stop due to progressive assimilation of [-cont] of /n/.

Table 17.7. The phonemic and phonetic realizations of Spanish words with /n/ preceding labio-dental consonants

Word(s)	Phonemic representation	Phonetic representation
énfasis enfriar	/enfasis/ /enfryar/	[éɲ.fa.sis] [eɲ.fryár]
un fuego un foco	/un#fwego/ /un#foko/	[un̩.fwé.ɣo] [un̩.fó.ko]

Table 17.8. The phonemic and phonetic realizations of Spanish words with /n/ preceding interdental consonants

Word(s)	Phonemic representation	Phonetic representation
encerrar anzuelo	/enθeɾar/ /anθweɫˈo/	[eɲ.θe.ɾár] [aɲ.θwé.ɫˈo]
un zapato un cenicero	/un#θapaɾo/ /un#θeniθero/	[uɲ.θa.pá.ɾo] [uɲ.θe.ni.θé.ro]

Table 17.9. The phonemic and phonetic realizations of Spanish words with /n/ preceding dental consonants

Word(s)	Phonemic representation	Phonetic representation
mantener condición	/mant ^ɲ ener/ /kond ^ɲ isyon/	[man ^ɲ .te.nér] [kon ^ɲ .di.syón]
un tío un día	/un#t ^ɲ io/ /un#d ^ɲ ia/	[un ^ɲ .tí.o] [un ^ɲ .dí.a]

Table 17.10. The phonemic and phonetic realizations of Spanish words with /n/ preceding alveolar consonants

Word(s)	Phonemic representation	Phonetic representation
encerrar	/ensẽrar/	[en.se.ɾár]
anzuelo	/answel̃o/	[an.swé.l̃o]
enredar	/eñɾɛdar/	[en.ɾe.ɟár]
innato	/innãto/	[in.ná.ʔo]
un zapato	/un#sapãto/	[un.sa.pá.ʔo]
un cenicero	/un#senisero/	[un.se.ni.sé.ro]
un lado	/un#l̃ãdo/	[un.l̃á.ɟo]
un rabo	/un#r̃ãbo/	[un.ɾá.βo]
un seso	/un#seso/	[un.sé.so]

Table 17.11. The phonemic and phonetic realizations of Spanish words with /n/ preceding retroflex consonants

Word(s)	Phonemic representation	Phonetic representation
insistir	/in̄s̄iʃ̄tir/	[in̄.s̄iʃ̄.t̄ir]
enseñar	/en̄ʃ̄eɲ̄ar/	[en̄.ʃ̄e.ɲ̄ár]
un seso	/un̄#s̄eʃ̄o/	[un̄.s̄é.ʃ̄o]
un señor	/un̄#s̄eɲ̄or/	[un̄.ʃ̄e.ɲ̄ór]

Table 17.12. The phonemic and phonetic realizations of Spanish words with /n/ preceding the palato-alveolar affricate

Word(s)	Phonemic representation	Phonetic representation
ancho enchilada	/ančo/ /enčil̩ aɖa/	[áñ.čo] [eñ.či.l̩.á.ɖa]
un chancho un chico	/un#čančo/ /un#čiko/	[uñ.čáñ.čo] [uñ.čí.ko]

Table 17.13. The phonemic and phonetic realizations of Spanish words with /n/ preceding palatal consonants

Word(s)	Phonemic representation	Phonetic representation
1. inyección	/in y eksyon/	[iñ.ɣek.syón]
2. conllevar	/kon y ebar/	[koñ.ɣe.βár]
3. conllevar	/kon ɲ ebar/	[koñ.ʎe.βár]
4. un yeso	/un# y eso/	[uñ.ɣé.so]
5. un ñame	/un# ñ ame/	[uñ.ñá.me]
6. un llanto	/un# y an̄to/	[uñ.ɣán̄.ɰto]
7. un llanto	/un# ɲ an̄to/	[uñ.ʎán̄.ɰto]

Table 17.14. The phonemic and phonetic realizations of Spanish words with /n/ preceding velar consonants

Word(s)	Phonemic representation	Phonetic representation
increíble	/inkreíβl̩e/	[iŋ.kre.í.βl̩ˈe]
ingle	/ingle/	[iŋ.gle]
ángel	/anxel̩/	[áŋ.xel̩]
enhuecar	/enwekar/	[eŋ.we.kár]
un carro	/un#kãro/	[uŋ.ká.̃ro]
un gato	/un#gato/	[uŋ.gá.̃to]
un gesto	/un#xesto/	[uŋ.xés.̃to]
un hueso	/un#weso/	[uŋ.wé.so]

Table 17.15. The phonemic and phonetic realizations of Spanish words with /n/ preceding glottal consonants

Word(s)	Phonemic representation	Phonetic representation
ángel enjabonado	/an ^h elˤ/ /en ^h abonado/	[án.helˤ] [en.ha.βo.ná.ɰo]
un gesto un jarabe	/un ^h est̥o/ /un ^h arabe/	[un.hés.ɰo] [un.ha.rá.βe]

Table 17.16. Representative vocabulary items optionally realized as [ŋ] in velarization dialects

Word(s)	Standard dialect phonetic representation	Velarization dialect phonetic representation
SECTION 1: imposible un vaso énfasis un fuego mantener un día anzuelo un zapato ancho un chancho conllevar un yeso	[im.po.sí.βl̞e] [um.bá.so] [éŋ.fa.sis] [uŋ.fwéyo] [maŋ.ɬe.nér] [uŋ.dí.a] [an.swé.l̞o] [un.sa.pá.ɬo] [áŋ.čo] [uŋ.čáŋ.čo] [koŋ.ye.βár] [uŋ.yé.so]	[iŋ.po.sí.βl̞e] [uŋ.bá.so] [éŋ.fa.sis] [uŋ.fwéyo] [maŋ.ɬe.nér] [uŋ.dí.a] [aŋ.swé.l̞o] [uŋ.sa.pá.ɬo] [áŋ.čo] [uŋ.čáŋ.čo] [koŋ.ye.βár] [uŋ.yé.so]
SECTION 2: ángel un gesto	[án.hel̞] [un.hés.ɬo]	[áŋ.hel̞] [uŋ.hés.ɬo]
SECTION 3: un ojo enaguas	[u.nó.ho] [e.ná.ɣwas]	[u.ŋó.ho] [e.ŋá.ɣwas]
SECTION 4: pan así hablan	[pán] [a.si.á.βl̞an]	[pánŋ] [a.si.á.βl̞anŋ]

Table 17.17. Pronunciation of sequences of two nasal phonemes in different speech registers

Nasal sequence	Speech register		
	Formal	Careful	Normal
/nn/ <i>innato</i>	[in.ná.ʔo]	[i.ná.ʔo]	[i.ná.ʔo]
/mn/ <i>gimnasio</i>	[him.ná.syo]	[hin.ná.syo]	[hi.ná.syo]
/nm/ <i>inmediato</i>	[in.me.ɟyá.ʔo]	[im.me.ɟyá.ʔo]	[i.me.ɟyá.ʔo]

Table 17.18. Orthographic representations of the Spanish phoneme /n/

Spelling	Examples
SECTION 1: Word-initial	nada, nervios, niño, nosotros, nuez
SECTION 2: Word-final	pan, son, hablan, comen, viven
SECTION 3: Syllable-initial after vowel	cana, cena, sino, mono, unir
SECTION 4: Syllable-initial after consonant	cisne, adnotación, trasnochar, himno, magnitud
SECTION 5: Syllable-final before nasal consonant	innato, innavegable, innatural, ennegrecer, ennoblecer
SECTION 6: Syllable-final before non-nasal consonant	hambre, lumbrar, imposible, hombre, umbral

Figure 17.3. Facial cross-section illustrating the position of the articulatory apparatus in the production of /ñ/

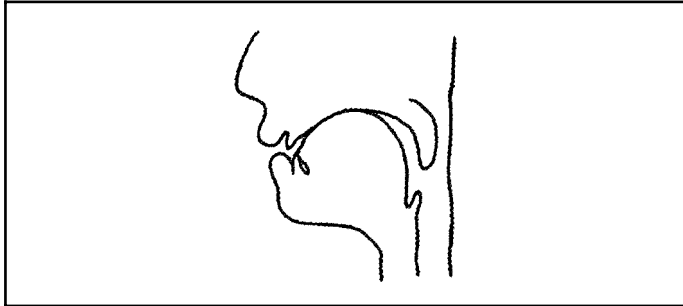


Table 17.19. Distribution of Spanish phoneme /ñ/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	ñame	/ñame/
Word-final	*****	*****
Syllable-initial after vowel	caña	/kaña/
Syllable-initial after consonant	*****	*****
Syllable-final	*****	*****

Table 17.20. Orthographic representations of the Spanish phoneme /ɲ/

Spelling	Examples
Word-initial	ñame, ñandú, ñato, ñaño, ñapa
Syllable-initial after vowel	caña, paño, raña, isleño, español

Figure 18.1. Facial cross-section illustrating the position of the articulatory apparatus in the production of /r/

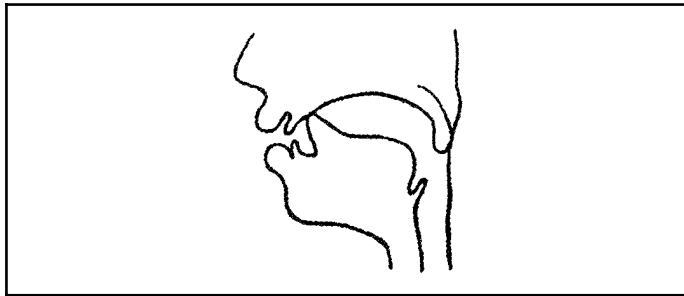


Table 18.1. Distribution of Spanish phoneme /r/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	*****	*****
Word-final	mar	/mar/
Syllable-initial after vowel	caro	/karo/
Post-consonantal in consonant + /r/ syllable onsets	subrayar	/subrayar/
Syllable-final	artista	/artista/

Table 18.2. Representative vocabulary items phonetically realized with assibilated non-lateral liquid variants of the phoneme /r/

Word(s)	Standard phonetic representation	Assibilation dialect phonetic representations	
mar	[már]	[mář]	[mář̞]
mar bonito mar azul	[mar.βo.ní.ʔo] [ma.ra.súl^]	[mař.βo.ní.ʔo] [ma.řa.súl^]	[mař̞.βo.ní.ʔo] [ma.ř̞a.súl^]
caro subrayar artista ardiente	[ká.ro] [su.βra.yár] [ar.ʔís.ʔa] [ar.ɔyéŋ.ʔe]	[ká.řo] [su.βřa.yár] [ař.ʔís.ʔa] [ař.ɔyéŋ.ʔe]	[ká.ř̞o] [su.βř̞a.yár] [ař̞.ʔís.ʔa] [ař̞.ɔyéŋ.ʔe]

Table 18.3. Orthographic representations of the Spanish phoneme /r/

Spelling	Examples
Syllable-initial after vowel	caro, pero, ahora, foro, moro
Post-consonantal in consonant + /r/ onsets	subrayar, subrogar, crema, trébol, grave
Syllable-final	artista, mercado, irlandés, carbón, árbol
Word-final	mar, hablar, estar, ser, tener

Figure 18.2. Facial cross-section illustrating the position of the articulatory apparatus in the production of /r̄/

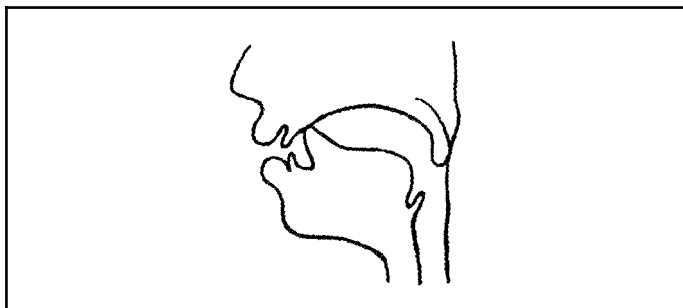


Table 18.4. Distribution of Spanish phoneme /ɾ/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	rojo	/r̄ojo/
Word-final	*****	*****
Syllable-initial after vowel	carro	/kāro/
Syllable-initial after consonants /l̄/, /n/, or /s/	alrededor enredar Israel	/al̄ r̄ēdēdōr/ /en̄fēdār/ /is̄rāēl̄/
Syllable-final	*****	*****

Table 18.5. Representative vocabulary items phonetically realized with assibilated non-lateral liquid variants of the phoneme /r/

Word(s)	Standard phonetic representation	Assibilation dialect phonetic representations	
rojo	[r̄ó.ho]	[r̄ó.ho]	[r̄̃ó.ho]
una rosa el rosal	[u.na.r̄ó.sa] [el̄̃.r̄o.sál̄̃]	[u.na.r̄ó.sa] [el̄̃.r̄o.sál̄̃]	[u.na.r̄̃ó.sa] [el̄̃̃.r̄̃o.sál̄̃̃]
carro corrida torre	[ká.r̄o] [ko.r̄í.ɸa] [t̄ó.r̄e]	[ká.r̄o] [ko.r̄í.ɸa] [t̄ó.r̄e]	[ká.r̄̃o] [ko.r̄̃í.ɸa] [t̄ó.r̄̃e]
alrededor enredar Israel	[al̄̃.r̄e.ɸe.ɸór] [en.r̄e.ɸár] [ih.r̄̃a.él̄̃]	[al̄̃.r̄e.ɸe.ɸór] [en.r̄e.ɸár] [ih.r̄̃a.él̄̃]	[al̄̃̃.r̄̃e.ɸe.ɸór] [en.r̄̃e.ɸár] [ih.r̄̃̃a.él̄̃̃]

Table 18.6. Representative vocabulary items phonetically realized with posteriorized non-lateral liquid variants of the phoneme /r/

Word(s)	Standard Spanish	Posteriorization dialect phonetic representations		
rojo	[r̄ó.ho]	[χó.ho]	[Ró.ho]	[R̄ó.ho]
una rosa	[u.na.r̄ó.sa]	[u.na.χó.sa]	[u.na.Ró.sa]	[u.na.R̄ó.sa]
el rosal	[el̄ .r̄o.sál̄]	[el̄ .χo.sál̄]	[el̄ .Ro.sál̄]	[el̄ .R̄o.sál̄]
carro	[ká.r̄o]	[ká.χo]	[ká.Ro]	[ká.R̄o]
corrída	[ko.r̄í.ɖa]	[ko.χí.ɖa]	[ko.Rí.ɖa]	[ko.R̄í.ɖa]
torre	[tó.r̄e]	[tó.χe]	[tó.Re]	[tó.R̄e]
alrededor	[al̄ .r̄e.ɖe.ɖór]	[al̄ .χe.ɖe.ɖór]	[al̄ .Re.ɖe.ɖór]	[al̄ .R̄e.ɖe.ɖór]
enredar	[en.r̄e.ɖár]	[en.χe.ɖár]	[en.Re.ɖár]	[en.R̄e.ɖár]
Israel	[ih.r̄a.él̄]	[ih.χa.él̄]	[ih.Ra.él̄]	[ih.R̄a.él̄]

Table 18.7. Orthographic representations of the Spanish phoneme /r̄/

Spelling	Examples
Syllable-initial after vowel	carro, perro, ahorra, forro, morro
Word-initial	rabo, remar, rima, rojo, rubio
Syllable-initial after /l̄/, /n/ or /s/	malrotador, alrededor, enredar, honrado, Israel

Table 18.8. Distribution pattern of Spanish /r/ and /r̄/ phonemes

Environment	Example	Simple vibrant /r/	Multiple vibrant /r̄/
Word-initial	rojo	no	yes
Word-final	mar	yes	no
Syllable-initial after vowel	pero perro	yes	yes
Syllable-initial after consonant	enredar	no	yes
Post-consonantal in consonant + /r/ onsets	subrayar trébol	yes	no
Syllable-final	margen	yes	no

Table 18.9. Derivation of representative Spanish lexemes using the one non-lateral liquid phoneme analysis

Example	Phonemic representation	Phonological rule affecting liquids	Phonetic representation
rojo	/roho/	Word-initial consonant strengthening #/r/ → [r̄]	[r̄ó.ho]
mar	/mar/	None	[már]
pero	/pero/	None	[pé.ro]
perro	/perro/	Geminate liquid consonant strengthening /rr/ → [r̄]	[pé.r̄o]
enredar	/enredar/	Post-consonantal coda /r/ strengthening /C.r/ → [C̄r̄]	[en.r̄e.ɾ̄ár]
subrayar	/subrayar/	None	[su.βra.yár]
trébol	/t̄rebol̄/	None	[t̄ré.βol̄]
margen	/marhen/	None	[már.hen]

Figure 19.1. Facial cross-section illustrating the position of the articulatory apparatus in the production of /l̞/

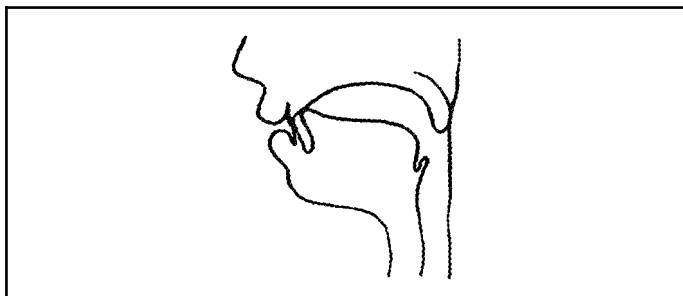


Table 19.1. Distribution of Spanish phoneme /ɫ̃/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	lado	/l̃aɔ̃do/
Word-final	tal	/t̃al̃/
Syllable-initial after vowel	ilegal	/iɫ̃egaɫ̃/
Syllable-initial after consonant	atleta	/aɫ̃ɫ̃eɫ̃a/
Syllable-final	alcoba	/aɫ̃koba/

Table 19.2. Phonetic symbols used to represent different Spanish lateral liquid allophones and their phonetic descriptions

Phonetic symbol	Phonetic description
1. [l̞]	(voiced) palatalized apico-dental lateral liquid
2. [l̞ˠ]	(voiced) palatalized apico-alveolar lateral liquid
3. [l̞̃]	(voiced) lamino-palato-alveolar lateral liquid
4. [l̞ˡ]	(voiced) lamino-palatal lateral liquid

Table 19.3. The phonemic and phonetic realizations of Spanish words with /l̞/ preceding dental consonants

Word(s)	Phonemic representation	Phonetic representation
alto	/a ^h l̞to/	[á ^h l̞.t̞o]
aldea	/a ^h l̞ ^h de̞a/	[á ^h l̞. ^h de̞.a]
el tío	/e ^h l̞#t̞io/	[e ^h l̞.t̞í.o]
el día	/e ^h l̞# ^h dia/	[e ^h l̞. ^h dí.a]

Table 19.4. The phonemic and phonetic realizations of Spanish words with /l̞/ preceding the Spanish palato-alveolar affricate /t͡ʃ/

Word(s)	Phonemic representation	Phonetic representation
colchón salchicha	/ko ^{l̞} ʧón/ /sa ^{l̞} ʧiça/	[ko ^{l̞} .t͡ʃón] [sa ^{l̞} .t͡ʃi.ça]
el chancho el chico	/e ^{l̞} #ʧančo/ /e ^{l̞} #ʧiko/	[e ^{l̞} .t͡ʃán.t͡ʃo] [e ^{l̞} .t͡ʃi.ko]

Table 19.5. The phonemic and phonetic realizations of Spanish words with /l̞/ preceding palatal consonants

Word(s)	Phonemic representation	Phonetic representation
1. caliente	/ka ^h ˈyente/	[ka.ɫyẽɲ.te]
2. el yeso	/el̞ ^h #yeso/	[eɫ.yé.so]
3. el ñame	/el̞ ^h #ñame/	[eɫ.ɲá.me]
4. el llanto	/el̞ ^h #yanto/	[eɫ.yáɲ.ɔ]
5. el llanto	/el̞ ^h #ɫanto/	[eɫ.ɫáɲ.ɔ]
6. al llegar	/al̞ ^h #yegar/	[aɫ.ye.ɣár]
7. al llegar	/al̞ ^h #ɫegar/	[aɫ.ɫe.ɣár]

Table 19.6. Spanish words with /l̞/ in pre-consonantal non-lateral assimilation environments alveolar consonants

Word(s)	Phonemic representation	Phonetic representation
alba el mono	/al̞ba/ /el̞#mono/	[ál̞.βa] [el̞.mó.no]
alfiler el fuego	/al̞fil̞er/ /el̞#fwego/	[al̞.fi.l̞ér] [el̞.fwé.ɣo]
falso calzado el rabo el nido	/fal̞so/ /kal̞saðo/ /el̞#r̞abo/ /el̞#niðo/	[fál̞.so] [kal̞.sá.ðo] [el̞.r̞á.βo] [el̞.ní.ðo]
algo el carro el hueso el gesto	/al̞go/ /el̞#kaño/ /el̞#weso/ /el̞#xest̞o/	[ál̞.ɣo] [el̞.ká.ño] [el̞.wé.so] [el̞.xés̞.t̞o]
el gesto	/el̞#hest̞o/	[el̞.hés̞.t̞o]

Table 19.7. Representative vocabulary items phonetically realized with various liquid allophones in final environments

Process	Lexical item	
	<i>Marta</i> /mar̥ta/	<i>malta</i> /mal̥ta/
None (standard)	[már.̥ta]	[mál.̥ta]
Rhotacization	*****	[már.̥ta]
Lambdacization	[mál.̥ta]	*****
Hybridization	[má ^l _r .̥ta]	[má ^l _r .̥ta]
Devoicing	[már.̥ta]	[mál.̥ta]
Liquid-gliding	[máy.̥ta]	[máy.̥ta]

Table 19.8. Orthographic representations of the Spanish phoneme /ɫ̂/

Spelling	Examples
Word-initial	lado, lema, lima, loma, luna
Word-final	tal, miel, mil, sol, azul
Syllable-initial in CC clusters	sublevar, afligir, aglutinar, blanco, pliego
Syllable-initial after vowel	palo, gelar, ilegal, ola, mulero
Syllable-initial after consonant	atleta, Carlos, perla, Atlántico, enlace
Syllable-final (before consonant)	silbato, alfiler, selva, algo, calma

Figure 19.2. Facial cross-section illustrating the position of the articulatory apparatus in the production of /k/

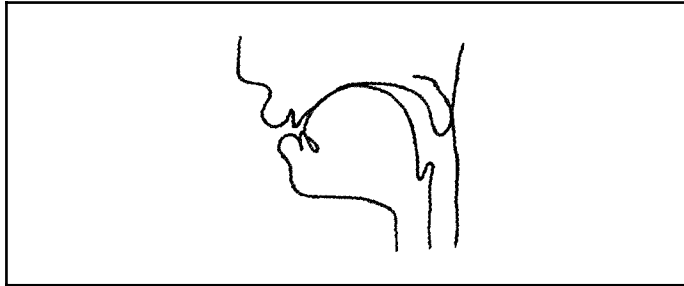


Table 19.9. Distribution of Spanish *lleísta* phoneme /ʎ/

Phonetic environment	Lexical item	Phonemic transcription
Word-initial	llave	/ʎabe/
Word-final	*****	*****
Syllable-initial after vowel	ella	/eʎa/
Syllable-initial after consonant	conllevar	/konʎebar/
Syllable-final	*****	*****

Table 19.10. Orthographic representations of the Spanish phoneme /ʎ/

Spelling	Examples
Word-initial	llave, llamar, llover, llanto, lleno
Syllable-initial after vowel	valle, calle, Castilla, hallar, callar
Syllable-initial after consonant	conllevar, conllorar, enllantar, enllocar, enllentecer

Table 19.11. Phonemic representation of representative pairs of words in *lleísta* and *yeísta* dialects

Word	Phonemic representation	
	<i>Lleísmo</i>	<i>Yeísmo</i>
cayo	/kayo/	/kayo/
callo	/kaʎo/	/kayo/
maya	/maya/	/maya/
mallá	/maʎa/	/maya/
vaya	/baya/	/baya/
valla	/baʎa/	/baya/

Figure 20.1. The frequency of sound waves

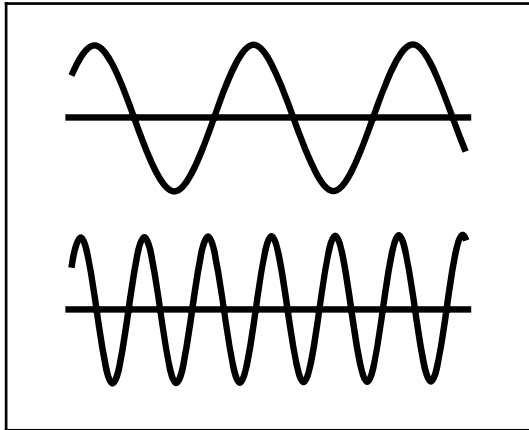


Figure 20.2. The amplitude of sound waves

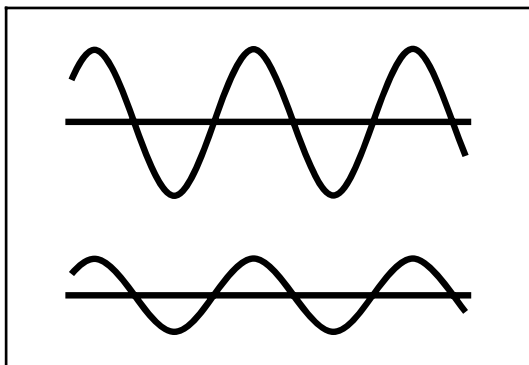


Table 20.1. Representative examples of regular Spanish oxytones (*agudas*)

Words ending in non-glides	Words ending in glides
1. verdad	6. mamey
2. reloj	7. carey
3. caracol	8. convoy
4. hablar	9. Garay
5. atroz	10. Abreu

Figure 20.3. Representative examples of regular Spanish paroxytones (*llanas*)

1. habla, casa, bonita
2. come, vive, hable, clase, base
3. casi
4. hablo, como, vivo, Caio, bonito
5. tribu
6. hablan, comen, viven
7. hablas, comes, vives, casas, bonitas

Figure 20.4. Representative examples of Spanish proparoxytones (*esdrújulas*)

1. fonética	7. prosódico	13. ánimo	19. hablábamos
2. régimen	8. cardíaco	14. quirúrgico	20. comíamos
3. análisis	9. período	15. época	21. escribíamos
4. histórico	10. término	16. fábrica	22. diéramos
5. múltiple	11. atmósfera	17. huérfano	23. tuviéramos
6. plátano	12. público	18. indígena	24. pidiésemos

Figure 20.5. Representative examples of Spanish *sobreesdrújulas*

1. escribemela
2. láveselo
3. regalársenoslo
4. dígasemele
5. comprándosenoslo

Figure 20.6. Spanish stress rules

1. Words ending in a single vowel letter or the consonant letter “n” or “s” are stressed on the penultimate syllable.
2. Words ending in a consonant letter other than “n” or “s” or ending in a diphthong are stressed on the last syllable.
3. Words that do not follow the first two rules must bear a written accent.

Figure 20.7. Representative examples of irregular Spanish paroxytones (*llanas*)

1. césped	6. lápiz
2. mármol	7. fémur
3. automóvil	8. carácter
4. árbol	9. versátil
5. difícil	10. cráter

Figure 20.8. Representative examples of irregular Spanish oxytones (*agudas*)

1. comején	7. acá	13. miré
2. compás	8. café	14. miró
3. limón	9. colibrí	15. miraré
4. atención	10. caló	16. comí
5. atrás	11. bambú	17. viví
6. adiós	12. maní	18. irá

Table 20.2. Representative Spanish monosyllabic homophonous pairs distinguished by presence or absence of a written accent mark

Lexical pair	Description	Phonetic transcription
de dé	preposition verb <i>dar</i>	[d̥é] [d̥é]
el él	definite article subject pronoun	[él̃^] [él̃^]
mas más	conjunction (<i>pero</i>) quantifier (more)	[más] [más]
mi mí	possessive adjective prepositional object	[mí] [mí]
se sé	object or reflexive pronoun verb <i>saber</i>	[sé] [sé]
si sí	conjunction ('if') adverb ('yes')	[sí] [sí]
te té	object or reflexive pronoun noun	[t̥é] [t̥é]
tu tú	possessive adjective subject pronoun	[t̥ú] [t̥ú]

Table 20.3. Representative Spanish polysyllabic homophonous pairs distinguished by presence or absence of a written accent mark

Lexical pair	Description	Phonetic transcription
aquel aquél	demonstrative adjective demonstrative pronoun	[a.ké.l̃ˈ] [a.ké.l̃ˈ]
ese ése	demonstrative adjective demonstrative pronoun	[é.se] [é.se]
este éste	demonstrative adjective demonstrative pronoun	[és.ɲe] [és.ɲe]
solo sólo	adjective ('only') adverb ('alone')	[só.l̃ˈo] [só.l̃ˈo]

Table 20.4. Representative Spanish homophonous pairs not distinguished by presence or absence of a written accent mark

Lexical pair	Description	Phonetic transcription
vino vino	noun verb (preterite of <i>venir</i>)	[bí.no] [bí.no]
traje traje	noun verb (preterite of <i>traer</i>)	[trá.he] [trá.he]
di di	verb (preterite of <i>dar</i>) verb (imperative of <i>decir</i>)	[dí] [dí]
fuera fuera	preposition verb (imperfective subjunctive of <i>ir</i> and <i>ser</i>)	[fwé.ra] [fwé.ra]
prueba prueba	verb (present indicative of <i>probar</i>) noun	[prwé.βa] [prwé.βa]

Table 20.5. Homophonous Spanish interrogatives and relatives

Lexical pair	Description	Phonetic transcription
como ¿cómo?	relative interrogative	[kó.mo] [kó.mo]
cual ¿cuál?	relative interrogative	[kwál^] [kwál^]
cuando ¿cuándo?	relative interrogative	[kwáṇ.do] [kwáṇ.do]
cuanto ¿cuánto?	relative interrogative	[kwáṇ.ʔo] [kwáṇ.ʔo]
donde ¿dónde?	relative interrogative	[dóṇ.de] [dóṇ.de]
que ¿qué?	relative interrogative	[ké] [ké]
quien ¿quién?	relative interrogative	[kyén] [kyén]

Chapter 21 examples (3-6)

(3) → ↗ ↗
¿Ya viene María? 'Is Mary coming yet?'


(4) → ↗ | ↘ ↘
¿Ya viene? María. 'Are you coming yet, Mary?'

(5) ↘ ↘
Ya viene María. 'Mary's coming now.'


(6) ↘ ↘ | ↗ ↘
Ya viene, María. 'He's coming now, Mary.'

Chapter 21 examples (7-11)

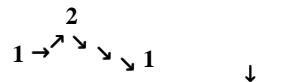
(7) Juan viene mañana. [hwan.byē.ne.ma.ñá.na]



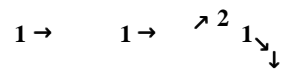
(8) ¿Juan viene mañana? [hwan.byē.ne.ma.ñá.na]



(9) ¿Quién viene mañana? [kyén.byē.ne.ma.ña.na]

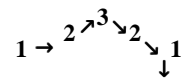


(10) Juan vende libros, plumas, y lápices.



[hwan.beṇ.ḡe.li.βros.plu.ma.si.lá.pi.ses]

(11) ¡Juan viene mañana!



[h w a n . b y e . n e . m a . ñ á . n a]

Table 22.1. The pronunciation of identical contiguous vowel phonemes within a word according to three different speech registers

Word	Speech register		
	Affected speech	Formal speech	Casual speech
moho	[mó.o]	[mó:]	[mó]
lee	[l [^] é.e]	[l [^] é:]	[l [^] é]
Sahara	[sa.á.ra]	[sá:.ra]	[sá.ra]
alcohol	[al [^] .ko.ól [^]]	[al [^] .kó:l [^]]	[al [^] .kól [^]]
cree	[kré.e]	[kré:]	[kré]

Table 22.2. The pronunciation of identical vowel phonemes across word boundaries according to different speech registers

Words	Speech register		
	Affected speech	Formal speech	Casual speech
la amistad	[l̂ a.a.mis.ʔáɸ]	[l̂ a:.mis.ʔáɸ]	[l̂ a.mis.ʔáɸ]
le entrega	[l̂ e.eŋ.ʔré.ʔa]	[l̂ e:ŋ.ʔré.ʔa]	[l̂ eŋ.ʔré.ʔa]
mi hijo	[mi.í.ho]	[mí:.ho]	[mí.ho]
lo odio	[l̂ o.ó.ɸyo]	[l̂ o:.ɸyo]	[l̂ ó.ɸyo]
su humo	[su.ú.mo]	[sú:.mo]	[sú.mo]

Table 22.3. The pronunciation of a contiguous [-high] vowel phoneme followed by an unstressed [+high] vowel phoneme according to different speech registers

Words	Speech register		
	Affected speech	Formal speech	Casual speech
la idea la humana	[l̂ [^] a.i.ɰé.a] [l̂ [^] a.u.má.na]	[l̂ [^] ay.ɰé.a] [l̂ [^] aw.má.na]	[l̂ [^] i.ɰé.a] [l̂ [^] u.má.na]
le indicó le urgió	[l̂ [^] e.iɲ.ɰi.kó] [l̂ [^] e.ur.hyó]	[l̂ [^] eyɲ.ɰi.kó] [l̂ [^] ewr.hyó]	[l̂ [^] iɲ.ɰi.kó] [l̂ [^] ur.hyó]
lo ubican lo hundió	[l̂ [^] o.u.βí.kan] [l̂ [^] o.uɲ.ɰyó]	[l̂ [^] ow.βí.kan] [l̂ [^] own.ɰyó]	[l̂ [^] u.βí.kan] [l̂ [^] uɲ.ɰyó]

Table 22.4. The pronunciation of an unstressed low vowel phoneme immediately followed by a mid vowel phoneme according to different speech registers

Word(s)	Speech register		
	Affected speech	Formal speech	Casual speech
maestro	[ma.és.ɾro]	[mǎ.és.ɾro]	[més.ɾro]
laosiano	[l ^ˆ a.o.syá.no]	[l ^ˆ ǎ.o.syá.no]	[l ^ˆ o.syá.no]
la entrega	[l ^ˆ a.en.ɾré.ɣa]	[l ^ˆ ǎ.en.ɾré.ɣa]	[l ^ˆ en.ɾré.ɣa]
la olvidó	[l ^ˆ a.ol ^ˆ .βi.ðó]	[l ^ˆ ǎ.ol ^ˆ .βi.ðó]	[l ^ˆ ol ^ˆ .βi.ðó]

Table 22.5. The pronunciation of an unstressed mid vowel phoneme followed by a different non-high vowel according to different speech registers

Word	Speech register		
	Affected speech	Formal speech	Casual speech
peor	[pe.ór]	[pi.ór]	[pyór]
toalla	[to.á.ya]	[tu.á.ya]	[twá.ya]
poeta	[po.é.ta]	[pu.é.ta]	[pwé.ta]
teatro	[te.á.tro]	[ti.á.tro]	[tyá.tro]
hornear	[or.ne.ár]	[or.ni.ár]	[or.ñyár]
crear	[kre.ár]	[kri.ár]	[kryár]
le arriba	[l [^] e.a.ří.βa]	[l [^] i.a.ří.βa]	[ɣya.ří.βa]
le odia	[l [^] e.ó.ɸya]	[l [^] i.ó.ɸya]	[ɣyó.ɸya]
lo abre	[l [^] o.á.βre]	[l [^] u.á.βre]	[l [^] wá.βre]
lo estima	[l [^] o.es.ɸí.ma]	[l [^] u.es.ɸí.ma]	[l [^] wes.ɸí.ma]

Figure 22.1. Spanish vowel triangle

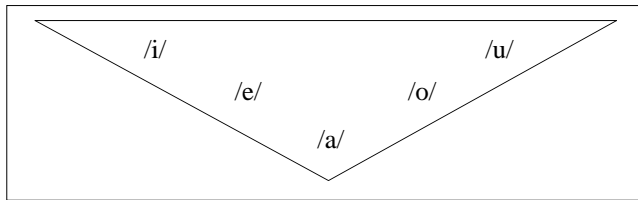


Table 22.6. Representative Spanish triphthongs occurring across word boundaries in casual speech

Example	Casual speech phonetic realization of triphthong
estudia inglés	[yay]
estudie inglés	[yey]
salió irritado	[yoy]
estudia humanidades	[yaw]
estudie humanidades	[yew]
salió humilado	[yow]
antigua idea	[way]
fue irresponsable	[wey]
ambiguo interés	[woy]
ambigua unión	[waw]
fue urgente	[wew]
ambiguo uniforme	[wow]

Table 23.1. The principal Romance languages

Spoken in Spain	Spoken elsewhere
Spanish	Portuguese
Catalan	French
Valencian	Italian
Galician	Romanian
Asturian	Provençal
Aragonese	Rhaeto-Romance
Leonese	Occitan
	Gascon
	Sardinian

Table 23.2. Six representative basic core vocabulary items in four Romance languages and two non-Romance languages

Spanish	French	Portuguese	Catalan	Euskera	English
pan	pain	pão	pa	ogi	bread
fiesta	fête	feira	fiesta	jai	party
padre	père	pai	pare	aita	father
vino	vin	vinho	vi	ardo	wine
venir	venir	vir	venir	etorri	to come
hacer	faire	fazer	fer	egin	to make

Table 23.3. The consonantal phonemes of Classical Latin

Stops	
A. /p, t, k/	Voiceless bilabial, dental/alveolar, and velar
B. /b, d, g/	Voiced bilabial, dental/alveolar, and velar
Fricatives	
C. /f, s/ /(h)/	Voiceless labio-dental (bilabial?), dental/alveolar (and glottal)
Nasals	
D. /m, n/	Voiced bilabial and dental/alveolar
Liquids	
E. /l/	Voiced apico-dental/alveolar lateral
F. /r/	Voiced apico-dental/alveolar non-lateral

Figure 23.1. The vocalic phonemes of Classical Latin

<p><i>/ī/, /ĩ/</i> High front unrounded vowels (long and short)</p>		<p><i>/ū/, /ũ/</i> High back rounded vowels (long and short)</p>
<p><i>/ē/, /ě/</i> Mid front unrounded vowels (long and short)</p>		<p><i>/ō/, /ǒ/</i> Mid back rounded vowels (long and short)</p>
	<p><i>/ā/, /ǎ/</i> Low central unrounded vowels (long and short)</p>	

Figure 23.2. Seven-vowel phonemic system of Popular Latin

/i/		/u/
/e/ /ɛ/		/o/ /ɔ/
	/a/	

Figure 23.3. Important dates in the historical development of the Spanish language

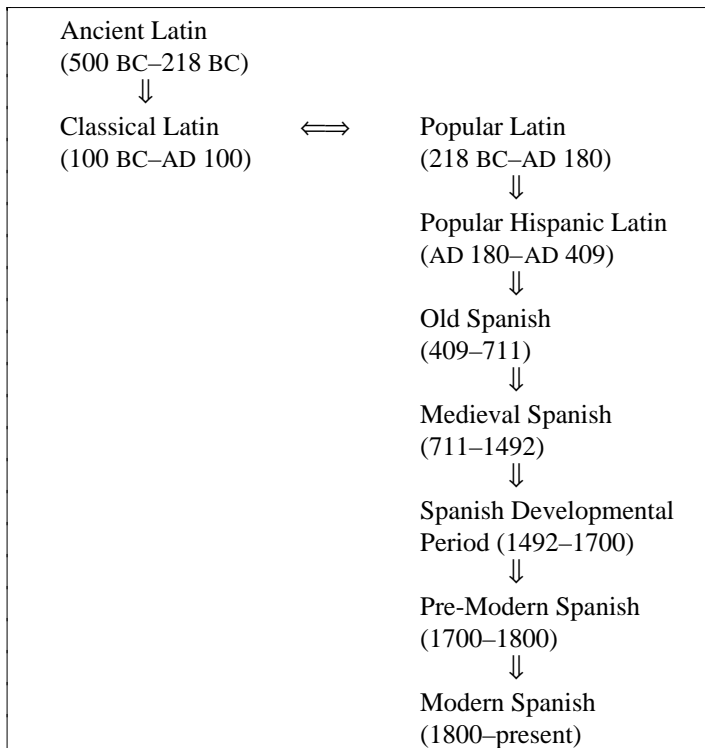


Table 23.4. The six sibilant phonemes of Old Spanish (409–711)

Phoneme	Description	Spelling	Example(s)
/s/	voiceless alveolar fricative	double “s” or consonant + “s”	viniesse osso mensaje
/z/	voiced alveolar fricative	single “s” between vowels	casa oso
/š/	voiceless palato-alveolar fricative	“x”	X imena
/ž/	voiced palato-alveolar fricative	“j” or “g” before a front vowel	hijo coger
/tʃ/	voiceless alveolar affricate	“ç”	plaça
/dʒ/	voiced alveolar affricate	“z”	hazer

Table 23.5. The six sibilant phonemes of Medieval Spanish (711–1492)

Phoneme	Description	Spelling	Example(s)
/ʃ/	voiceless apico-alveolar fricative (retroflex?)	double “s” or consonant+ “s”	viniesse osso mensaje
/z/	voiced apico-alveolar fricative (retroflex?)	single “s” between vowels	casa oso
/š/	voiceless palato-alveolar fricative	“x”	X imena
/ž/	voiced palato-alveolar fricative	“j” or “g” before a front vowel	hijo coger
/s/ (< /tʰ/)	voiceless lamino-alveolar fricative	“ç” or “c” before front vowel	plaça haces
/z/ (< /dʰ/)	voiced lamino-alveolar fricative	“z”	hazer

Table 23.6. Comparison of sibilant phonemes between Medieval Spanish and early-16th-century Spanish

Medieval Spanish (711–1492) <Six Phonemes>	Early-16th-century Spanish (1530–1550) <Three Phonemes>
Apico-alveolar: /ʃ/ <i>osso</i> [óʃo] /z/ <i>oso</i> [óz̄o]	/ʃ/ <i>osso</i> [óʃo] <i>oso</i> [óʃo]
Palato-alveolar: /š/ <i>xira</i> [šíra] /ž/ <i>gira</i> [žíra]	/š/ <i>xira</i> [šíra] <i>gira</i> [šíra]
Lamino-alveolar: /s/ <i>haces</i> [áseʃ] /z/ <i>hazes</i> [ázeʃ]	/s/ <i>haces</i> [áseʃ] <i>hazes</i> [áseʃ]

Table 23.7. The relative articulation positions of the three Spanish early-17th-century sibilants.

Places of articulation	Active articulator				
	Lower lip	Tongue blade		Tongue back/root	Vocal fold
		Tip	Front		
Bilabial Labio-dental					
Interdental Dental Alveolar Palato-alveolar Palatal		/ʃ/	/s/ /š/		
Velar					
Glottal					

Table 23.8. The relative articulation positions of the three post-1700 Spanish fricatives in northern and central Spain

Places of articulation	Active articulator				
	Lower lip	Tongue blade		Tongue back/root	Vocal fold
		Tip	Front		
Bilabial Labio-dental					
Interdental Dental Alveolar Palato-alveolar Palatal		/θ/ /ʃ/			
Velar				/x/ (or /χ/)	
Glottal					

Table 23.9. The relative articulation positions of the post-1700 Spanish sibilants in Andalucía and the New World

Places of articulation	Active articulator				
	Lower lip	Tongue blade		Tongue back/root	Vocal fold
		Tip	Front		
Bilabial Labio-dental					
Interdental Dental Alveolar Palato-alveolar Palatal			/s/		
Velar					
Glottal					/h/

Table 23.10. Different groups on the Iberian Peninsula

Groups	Dates
Basques	6000 BC–Present
Iberians	4000 BC
Phoenicians	1200–600 BC
Celts	1100 BC
Greeks	700 BC
Celtiberians	1000–237 BC
Carthaginians	237–207 BC
Romans	207 BC–AD 409
Vandals and Sueves	409–429
Visigoths	429–711
Moors	711–1492

Table 23.11. Guipuzcoan Basque consonant phonemes

Phonemes	Phonetic descriptions
/p, t̪, k/	[–voice] bilabial, dental, and velar stops
/b, d̪, g/	[+voice] bilabial, dental, and velar stops
/f, x/	[–voice] labio-dental and velar fricatives
/s̺, s, š/	[–voice] apico-alveolar, lamino-alveolar, and palato-alveolar fricatives
/š̺, š, č/	[–voice] apico-alveolar, lamino-alveolar, and palato-alveolar affricates
/m, n/	bilabial and alveolar (dental) nasals
/r, r̄/	apico-alveolar flap and trill liquids
/l/	apico-alveolar lateral liquid

Figure 23.4. The five vocalic phonemes of Guipuzcoan Basque

/i/		/u/
/e/		/o/
	/a/	

Table 24.1. Three unique characteristics of Castilian Spanish

Feature	Examples	
	Castilian Spanish	Non-Castilian Spanish
<i>distinción</i>	<i>casa</i> /kaʃa/ <i>caza</i> /kaθa/	<i>casa</i> /kasa/ <i>caza</i> /kasa/
The phoneme /χ/	<i>jefe</i> /χéfe/ <i>gente</i> /χenɲe/ <i>gitano</i> /χiɲano/	<i>jefe</i> /xéfe/ or /héfe/ <i>gente</i> /xenɲe/ or /henɲe/ <i>gitano</i> /xiɲano/ or /hiɲano/
<i>vosotros</i>	<i>habláis</i> <i>coméis</i> <i>vivís</i>	<i>Vds. hablan</i> <i>Vds. comen</i> <i>Vds. viven</i>

Table 24.2. Andalusian Spanish *ceceo* and lack of *distinción*

Feature	Andalusian Spanish	Caribbean Spanish	Castilian Spanish
<i>ceceo</i>	<i>secesión</i> [^θ e.θe.θyón]	<i>secesión</i> [se.se.syón]	<i>secesión</i> [ʃe.θe.ɣyón]
Lack of <i>distinción</i>	<i>casa</i> [ká. ^θ a] <i>caza</i> [ká. ^θ a]	<i>casa</i> [ká.sa] <i>caza</i> [ká.sa]	<i>casa</i> [ká.ʃa] <i>caza</i> [ká.θa]

Table 24.3. Andalusian Spanish *yeísmo*

Andalusian Spanish	Caribbean Spanish	Castilian Spanish	
		<i>yeísmo</i>	<i>lleísmo</i>
<i>haya</i> /aya/	<i>haya</i> /aʝa/	<i>haya</i> /aʝa/	<i>haya</i> /aya/
<i>halla</i> /aya/	<i>haya</i> /aʝa/	<i>halla</i> /aʝa/	<i>halla</i> /aɫa/

Table 24.4. The phoneme /h/ in Andalusian Spanish

Andalusian Spanish		Caribbean Spanish		Castilian Spanish	
<i>hijo</i>	/iho/	<i>hijo</i>	/iho/	<i>hijo</i>	/iχo/
<i>gira</i>	/hira/	<i>gira</i>	/hira/	<i>gira</i>	/χira/
<i>gente</i>	/hente/	<i>gente</i>	/hente/	<i>gente</i>	/χente/

Table 24.5. The velarization of the phoneme /n/ in syllable codas

Andalusian Spanish	Caribbean Spanish	Castilian Spanish
<i>pan</i> [páŋ] [pá̞ŋ]	<i>pan</i> [páŋ] [pá̞ŋ]	<i>pan</i> [pán]
<i>pan y agua</i> [pá.ŋyá.ɣwa] [pá̞.ŋyá.ɣwa]	<i>pan y agua</i> [pá.ŋyá.ɣwa] [pá̞.ŋyá.ɣwa]	<i>pan y agua</i> [pá.ɲyá.ɣwa]
<i>enaguas</i> [e.ŋá.ɣwah] [ẽ.ŋá.ɣwah]	<i>enaguas</i> [e.ŋá.ɣwah] [ẽ.ŋá.ɣwah]	<i>enaguas</i> [e.ná.ɣwaʃ]

Table 24.6. Phonetic realizations of the phoneme /S/ in syllable codas in Andalusian, Caribbean, and Castilian Spanish

Andalusian Spanish	Caribbean Spanish	Castilian Spanish
<i>caspa</i> [káh.pa] [ká ^h .pa] [ká.pa]	<i>caspa</i> [káh.pa] [ká ^h .pa] [ká.pa]	<i>caspa</i> [káʃ.pa]
<i>comes</i> [kó.meh] [kó.me ^h] [kó.me]	<i>comes</i> [kó.meh] [kó.me ^h] [kó.me]	<i>comes</i> [kó.meʃ]

Table 24.7. The pronunciation of the phoneme /č/ in Andalusian, Caribbean, and Castilian Spanish

Andalusian Spanish	Caribbean Spanish	Castilian Spanish
<i>chico</i> [ší.ko]	<i>chico</i> [ší.ko]	<i>chico</i> [čí.ko]
<i>mucho</i> [mú.šo]	<i>mucho</i> [mú.šo]	<i>mucho</i> [mú.čo]

Table 24.8. Weakening and loss of final consonants in Andalusian and Caribbean Spanish and phonetic maintenance in Castilian Spanish dialect zones

Andalusian Spanish	Caribbean Spanish	Castilian Spanish
<i>andaluz</i> /an̄.ða.l̄u ^θ / [an̄.ða.l̄ú ^θ] [an̄.ða.l̄ú]	<i>andaluz</i> /an̄.ða.l̄us/ [an̄.ða.l̄úh] [an̄.ða.l̄ú]	<i>andaluz</i> /an̄.ða.l̄uθ/ [an̄.ða.l̄úθ]
<i>pan</i> /pan/ [pá] or [pá ^ʎ]	<i>pan</i> /pan/ [pá] or [pá ^ʎ]	<i>pan</i> /pan/ [pán]
<i>pared</i> /pareð/ [pa.ré ^ð] or [pa.ré]	<i>pared</i> /pareð/ [pa.ré ^ð] or [pa.ré]	<i>pared</i> /pareð/ [pa.ré ^ð] or [pa.ré ^ð]
<i>comes</i> /kome+s/ [kó.meh] or [kó.me]	<i>comes</i> /kome+s/ [kó.meh] or [kó.me]	<i>comes</i> /kome+s/ [kó.meʃ]
<i>reloj</i> /re ^l oh/ [re.l̄ó]	<i>reloj</i> /re ^l oh/ [re.l̄ó]	<i>reloj</i> /re ^l ox/ [re.l̄ó]

Table 24.9. Pronunciation of final liquids in casual discourse in Andalusian, Caribbean, and Castilian Spanish dialects

Andalusian Spanish	Caribbean Spanish	Castilian Spanish
<i>muerte</i> [mwé ^l .t̄e] [mwé ^l _r .t̄e] [mwé.t̄e]	<i>muerte</i> [mwé ^l .t̄e] [mwé ^l _r .t̄e] [mwé.t̄e]	<i>muerte</i> [mwér.t̄e]
<i>señor</i> [se.ñó ^l ˆ] [se.ñó ^l _r] [se.ñó]	<i>señor</i> [se.ñó ^l ˆ] [se.ñó ^l _r] [se.ñó]	<i>señor</i> [ʃe.ñór]
<i>alma</i> [ár.ma] [á ^l _r .ma] [á.ma]	<i>alma</i> [ár.ma] [á ^l _r .ma] [á.ma]	<i>alma</i> [álˆ.ma]
<i>social</i> [θo.θyár] [θo.θyá ^l _r] [θo.θyá]	<i>social</i> [so.syár] [so.syá ^l _r] [so.syá]	<i>social</i> [ʃo.θyálˆ]

Table 24.10. Weakening and loss of intervocalic voiced stop phonemes in Andalusian and Caribbean Spanish

Andalusian Spanish	Caribbean Spanish	Castilian Spanish
<i>pelado</i> [pe.ɫ̪á.ðo] [pe.ɫ̪á.o] [pe.ɫ̪áw]	<i>pelado</i> [pe.ɫ̪á.ðo] [pe.ɫ̪á.o] [pe.ɫ̪áw]	<i>pelado</i> [pe.ɫ̪á.ðo]
<i>tobillo</i> [to.βí.yo] [to.í.yo]	<i>tobillo</i> [to.βí.yo] [to.í.yo]	<i>tobillo</i> [to.βí.yo] [to.βí.ɫo]
<i>lago</i> [ɫ̪á.ɣo] [ɫ̪á.o] [ɫ̪áw]	<i>lago</i> [ɫ̪á.ɣo] [ɫ̪á.o] [ɫ̪áw]	<i>lago</i> [ɫ̪á.ɣo]

Table 24.11. The percentages of occurrence of phonological consonant weakening in Las Palmas, Gran Canaria (Samper Padilla 1990)

Phonological process	Percentage of occurrence
Weakening of final /n/	17.83% (1990:217)
Weakening of final /s/	90.56% (1990:64)
Weakening of final /r/	81.85% (1990:152)
Weakening of final /l̃/	68.17% (1990:191)
Weakening of intervocalic /d̃/	67.93% (1990:262)

Table 25.1. *Voseo* present-indicative morphological endings

<i>-ar</i> verbs	<i>-er</i> verbs	<i>-ir</i> verbs
1. vos hablás	vos comés	vos escribís
2. vos hablas	vos comes	vos escribes
3. vos habláis	vos coméis	vos escribís

Table 25.2. The general distribution of the phonemes /h/ and /x/ in American Spanish dialects. (Canfield 1981)

Phoneme	Geographical area
/h/	Bolivia Colombia Central America Caribbean parts of Mexico coastal Peru Venezuela
/x/	Argentina Chile parts of Mexico highland Peru Uruguay

Table 25.3. The general distribution of the assibilated and non-assibilated phones of /r/ and /r̄/ in American Spanish dialects. (Canfield 1981)

Phone	Geographical area
Assibilated [r̄] and/or [r̄̃]	interior Argentina highland Bolivia Chile highland Colombia non-coastal Costa Rica highland Ecuador Guatemala parts of Mexico Paraguay highland Peru
Non-assibilated [r] and [r̄]	coastal Argentina lowland Bolivia Pacific Coast/Costa Rica Caribbean coastal Ecuador El Salvador Nicaragua Honduras parts of Mexico coastal Peru Uruguay Venezuela

Appendix B: The Phonemes of Modern Spanish

Consonant phonemes of Modern Spanish

A.	/p, t, k/	[-voice] <i>Stops</i> – bilabial, dental, and velar
B.	/b, d, g/	[+voice] <i>Stops</i> – bilabial, dental, and velar
C.	/f, s, (θ)/	[-voice] <i>Fricatives</i> – labio-dental, alveolar, (and interdental)
D.	/x, χ, h/	[-voice] <i>Fricatives</i> – velar, postvelar, and glottal (note that only one of these is present as a phoneme in any particular dialect)
E.	/y, w/	[+voice] <i>Fricatives</i> – palatal and labio-velar
F.	/č/	[-voice] <i>Affricate</i> – palato-alveolar
G.	/m, n, ñ/	<i>Nasals</i> – bilabial, alveolar, and palatal
H.	/l̂, (ʎ)/	<i>Lateral liquids</i> – apico-alveolar (and palatal)
I.	/r, (r̄)/	<i>Non-lateral liquids</i> – apico-alveolar simple (and multiple) vibrant
J.	/y, w/	<i>Glides</i> – palatal and labio-velar

Appendix B: The Phonemes of Modern Spanish

Vocalic phonemes of Modern Spanish

<i>/i/</i> high front unrounded		<i>/u/</i> high back rounded
<i>/e/</i> mid front unrounded		<i>/o/</i> mid back rounded
	<i>/a/</i> low central unrounded	

Appendix C: The Phonemes of Modern American English

Consonant phonemes of Modern American English

A.	/p, t, k/	[-voice] <i>Stops</i> – bilabial, alveolar, and velar
B.	/b, d, g/	[+voice] <i>Stops</i> – bilabial, alveolar, and velar
C.	/f, θ, s, š, h/	[-voice] <i>Fricatives</i> – labio-dental, interdental, alveolar, palato-alveolar, and glottal
D.	/v, ð, z, ž/	[+voice] <i>Fricatives</i> – labio-dental, interdental, alveolar, and palato-alveolar
E.	/č/	[-voice] <i>Affricate</i> – palato-alveolar
F.	/ǰ/	[+voice] <i>Affricate</i> – palato-alveolar
G.	/m, n, ŋ/	<i>Nasals</i> – bilabial, alveolar, and velar
H.	/l/	<i>Lateral liquid</i> – apico-alveolar
I.	/ɹ/	<i>Non-lateral liquid</i> – apico-alveolar
J.	/y, w/	<i>Glides</i> – palatal and labio-velar

Appendix C: The Phonemes of Modern American English

Vocalic phonemes of Modern American English

<p><i>/i^y/</i> high front tense</p> <p><i>/ɪ/</i> high front lax</p>		<p><i>/u^w/</i> high back tense</p> <p><i>/ʊ/</i> high back lax</p>
<p><i>/e^y/</i> mid front tense</p> <p><i>/ɛ/</i> mid front lax</p>	<p><i>/ʌ/</i> mid central non-rounded</p>	<p><i>/o^w/</i> mid back tense</p> <p><i>/ɔ/</i> mid back lax</p>
<p><i>/æ/</i> low front</p>	<p><i>/ɑ/</i> low central</p>	

Appendix D: Distinctive Feature Values for Spanish Phonemes

Feature	p	b	m	f	θ	ʎ	ð	s	l̂	r	ř	n	ç	ʎ	ñ	y	k	g	x	w	ç	h	y	w	i	e	a	o	u
[sonorant]			+						+	+	+	+	+	+	+								+	+	+	+	+	+	+
[syllabic]																									+	+	+	+	+
[consonantal]	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+							
[anterior]	+	+	+	+	+	+	+	+	+	+	+	+																	
[coronal]					+	+	+	+	+	+	+	+	+	+	+														
[voiced]		+	+				+		+	+	+	+	+	+	+		+	+					+	+	+	+	+	+	+
[continuant]				+	+			+	+				+		+			+	+	+	+	+	+	+					
[back]																	+	+	+	+	+			+				+	+
[nasal]			+									+		+															
[strident]				+			+					+										+							
[tense]	+					+				+							+												
[lateral]									+				+																
[vibrant]										+	+																		
[high]														+	+	+	+	+	+	+	+			+	+			+	
[low]																							+				+		
[round]																				+				+				+	+