

Spanish Phonemics

1. Phonemes

Consonant Phonemes

		<i>bilab</i>	<i>labiodental</i>	<i>dental</i>	<i>alveolar</i>	<i>palato-alveoal</i>	<i>palatal</i>	<i>velar</i>
<i>Stops</i>	<i>vl.</i>		/p/		/t̪/			/k/
	<i>vd.</i>		/b/		/d̪/			/g/
<i>Fricatives</i>	<i>vl.</i>		/f/		/s/			/x/
<i>Affricates</i>	<i>vl.</i>					/t͡ʃ/		
<i>nasals</i>		/m/			/n/			/ɲ/
<i>laterals</i>					/l/			
<i>taps/trills</i>					/r/			
<i>semivowels</i>		/w/						/y/

Vowel Phonemes

	<i>Front</i>	<i>Central</i>	<i>Back</i>
<i>High</i>	/i/		/u/
<i>Mid</i>	/e/		/o/
<i>Low</i>		/a/	

2. Allophones

<i>phoneme</i>	<i>allophones</i>	<i>rules</i>
/k/	[k̟], [k]	Palatalization
/b/	[β], [b]	Stop-Fricative
/d/	[ð], [d]	Stop-Fricative
/g/	[ɣ], [g], [ʝ], [g̟]	Stop-Fricative, Palatalization
/s/	[z], [s], [z̟], [s̟]	s-Voicing, Alveolar Fronting
/x/	[χ], [x]	Palatalization
/n/	[m], [ɱ], [n], [ɲ], [ɲ̟], [ŋ], [ŋ̟]	Nasal Assimilation
/l/	[l], [l̟], [ʎ]	Lateral Assimilation
/r/	[r̄], [r]	r-Strengthening, Tap Deletion
/y/	[y̟], [ɣ̟], [y]	y-Strengthening, Stop-Fricative

3. Rules

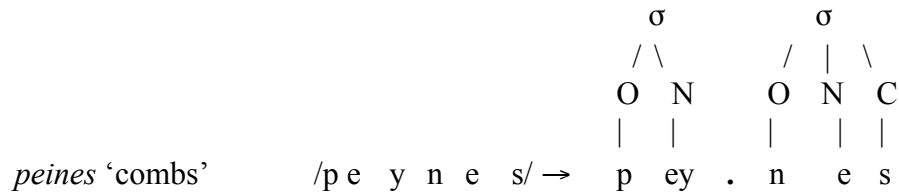
The rules should be applied in the order in which they are listed here (in some cases the order is crucial, in some cases it is not).

SYLLABIFICATION

Construct syllables from right to left. First put as much as you can into the nucleus (a vowel, diphthong, or a triphthong), add any free material on the right to the coda, then add a *maximal* onset, so long as the result is a possible onset.

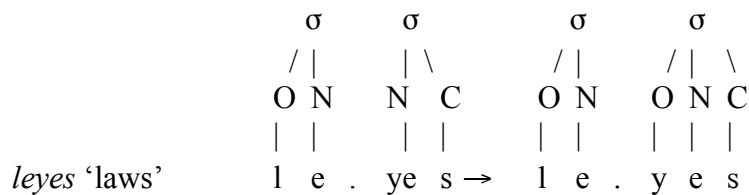
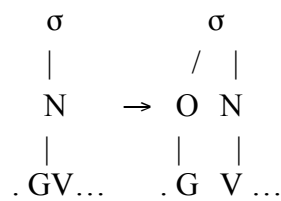
Examples:

		σ		σ
		/ \		/ \
		O N		O N C
<i>soplar</i> ‘blow’	/s o p l a r/ →	s o	.	p l a r



ONSET PROMOTION

If a syllable begins with a semivowel, and has no onset, the semivowel is put into the onset (note ‘G’ stands for ‘semivowel’ (glide)):



Y-STRENGTHENING

/y/ becomes a voiced palatal affricate at the beginning of a syllable; the stop-fricative rule may subsequently change this to a voiced palatal fricative (see discussion of the Stop-Fricative rule, below).

y → \hat{y} / .__

Examples:

orthography/gloss	<i>llamar</i> ‘call’	<i>tiene</i> ‘has’
phonemic rep.	/yamar/	/tyene/
syllabification	ya.mar	tye.ne
y-strengthening	\hat{y} a.mar	n/a
phonetic rep.	[\hat{y} amar]	[\hat{t} yéne] (the yet-to-be-formulated stress rule is assumed to apply at some point in the derivation)

S-VOICING

Syllable-final /s/ is voice when followed by a voiced consonant. It may be subsequently fronted by Velar fronting (see below).

$s \rightarrow z / ___ \cdot C_{\text{voiced}}$

Examples:

orthography/gloss	<i>mismo</i> ‘same’	<i>somos</i> ‘we are’	<i>consiente</i> ‘s/he consents’	<i>desde</i> ‘from’
phonemic rep.	/mismo/	/somos/	/konsyente/	/ðesðe/
syllabification	mis.mo	so.mos	kon.syen.ɾe	ðes.ðe
nasal assim.	n/a	n/a	kon.syen.ɾe	n/a
s-voicing	miz.mo	n/a	n/a	ðez.ðe
alveolar fronting	n/a	n/a	n/a	ðez.ðe
phonetic rep.	[mízmo]	[sómos]	[konsyénte]	[ðézðe]

ALVEOLAR FRONTING

Alveolars become dental when they precede a dental consonant. Note that this follows s-Voicing, So it applies to both voiceless and voiced alveolar fricatives

alveolar \rightarrow dental / $___ C_{\text{dental}}$

Examples:

orthography/gloss	<i>hasta</i> ‘until’	<i>desde</i> ‘from’
phonemic rep.	/aɾta/	/ðesðe/
syllabification	as.ta	ðes.ðe
s-voicing	n/a	ðez.ðe
alveolar fronting	aɾ.ta	ðez.ðe
phonetic rep.	[áɾ.ta]	[ðéz.ðe]

PALATALIZATION

Velars become dorso-palatal when they precede a front vowel; this applies to /g/, /k/, and /x/ to produce ξ , κ , and χ , respectively. A fronted ξ may subsequently become a fricative γ by the Stop-Fricative rule.

velar \rightarrow dorso-palatal / __ V_{front}

Examples:

orthography/gloss	<i>águila</i> ‘eagle’	<i>química</i> ‘chemistry’	<i>jinete</i> ‘rider’
phonemic rep.	/á.gi.la/ ¹	/kí.mi.ka/	/xi.ne.ɾe/
syllabification	á.gi.la	kí.mi.ka	xi.ne.ɾe
palatalization	á.ξi.la	κí.mi.ka	χi.ne.ɾe
stop-fricative (see below)	á.γi.la	n/a	n/a
phonetic rep.	[á.γi.la]	[kí.mi.ka]	[χi.ne.ɾe]

LATERAL ASSIMILATION

/l/ assimilates to the point of articulation of a following consonant. Note: since Spanish only allows dental, alveolar, and palatal laterals, /l/ will not assimilate to following bilabial and velar consonants.

lateral \rightarrow α poa / __ C_{α poa}

Examples:

orthography/gloss	<i>alto</i> ‘tall’	<i>lomo</i> ‘back’	<i>colchón</i> ‘mattress’	<i>alba</i> ‘dawn’	<i>alcor</i> ‘hill’
phonemic rep.	/al̥to/	/lomo/	/kol̥čon/	/alba/	/alkor/
syllabification	al̥.to	lo.mo	kol̥.čon	al.ba	al.kor
y-strengthening	n/a	n/a	n/a	n/a	n/a
lateral assim.	al̥.to	n/a	koł̥.čon	n/a	n/a
stop-fricative	n/a	n/a	n/a	ál.βa	n/a
phonetic rep.	[ál̥to]	[lómo]	[koł̥čón]	[álβa]	[alkór]

¹ The stress is marked in the phonemic representations of /á.gi.la/ and /kí.mi.ka/ because they will be exceptions to the general stress rule.

NASAL ASSIMILATION

A /n/ assimilates in point of articulation with a following consonant. This can produce nasals at all the points of articulation, including dorso-palatal, which is derived by the Velar Fronting rule.

$n \rightarrow \alpha \text{ poa} / _ C_{\alpha \text{ poa}}$

Examples:

orthography/gloss	<i>envío</i> ‘I send’	<i>enfrió</i> ‘I cool’	<i>nata</i> ‘cream’	<i>enyeso</i> ‘I plaster’
phonemic rep.	/enbio/	/enfrio/	/naɾa/	/enyeso/
syllabification	en.bi.o	en.fri.o	na.ɾa	en.ye.so
y-strengthening	n/a	n/a	n/a	en.ɣe.so
nasal assim.	em.bi.o	em̩.fri.o	n/a	eñ.ɣe.so
phonetic rep.	[embío]	[em̩frió]	[náta]	[eñýeso]

orthography/gloss	<i>finjir</i> ‘pretend’	<i>cinco</i> ‘five’
phonemic rep.	/finxir/	/sinko/
syllabification	fín.xir	sin.ko
palatalization	fín.ɣir	n/a
nasal assim.	fĩŋ.ɣir	siŋ.ko
phonetic rep.	[fĩŋɣír]	[siŋko]

STOP-FRICATIVE

Voiced stops (and the voiced affricate [ɣ]) become the corresponding voiced fricative when they are preceded by something that does not have the same point of articulation.

Voiced Stop (and Affricate) $\alpha \text{ poa} \rightarrow \text{Fricative} / X_{-\alpha \text{ poa}} _$

Examples:

orthography/gloss	<i>vaca</i> ‘cow’	<i>uva</i> ‘grape’	<i>ambos</i> ‘both’	<i>dato</i> ‘fact’	<i>lado</i> ‘side’	<i>ando</i> ‘I walk’
phonemic rep.	/baka/	/uba/	/anbo(s)/	/daɾo/	/laɾo/	/ando/
syllabification	ba.ka	u.ba	an.bo(s)	da.ɾo	la.ɾo	an.ɾo
nasal assim.	n/a	n/a	am.bos	n/a	n/a	aŋ.ɾo
stop-fric.	n/a	u.βa	n/a	n/a	la.ðo	n/a
phonetic rep.	[báka]	[úβa]	[ámbos]	[dáto]	[láðo]	[áɾdo]

More Stop-Fricative rule examples:

orthog./gloss	<i>gato</i> ‘cat’	<i>lago</i> ‘lake’	<i>hongo</i> ‘mushroom’	<i>llamo</i> ‘I call’	<i>valle</i> ‘valley’	<i>cónyuge</i> ‘spouse’
phonemic rep.	/ga.ʎo/	/lago/	/ongo/	/yamo/	/baye/	/kónyuxe/
syllabification	ga.ʎo	la.go	on.go	ya.mo	ba.ye	kón.yu.xe ²
palatalization	n/a	n/a	n/a	n/a	n/a	kón.yu.ʎe
y-strength.	n/a	n/a	n/a	ýa.mo	ba.ýe	kón.ýu.ʎe
nasal assim.	n/a	n/a	oŋ.go	n/a	n/a	kón.ýu.ʎe
stop-fric.	n/a	la.ʎo	n/a	n/a	ba.ýe	n/a
phonetic rep.	[gáʎo]	[láʎo]	[ónʎo]	[ýámo]	[báye]	[kónýuxe]

R-STRENGTHENING and TAP DELETION

The tap /r/ becomes a trill at the beginning of a word or at the beginning of a syllable when following a consonant. A tap is deleted when it occurs before a trill.

R-STRENGTHENING: r → r̄ / # ___ or C . ___

TAP DELETION: r → Ø / ___ r̄

Examples:

orthography/gloss	<i>rabo</i> ‘tail’	<i>caro</i> ‘expensive’	<i>carro</i> ‘car’	<i>Israel</i> ‘Israel’	<i>por radio</i> ‘by radio’
phonemic rep.	/rabo/	/karo/	/karro/	/israel/	/por ra.ðyo/
syllabification	ra.bo	ka.ro	kar.ro	is.ra.el	por .ra.ðyo
s-voicing	n/a	n/a	n/a	iz.ra.el	n/a
stop-fric.	ra.βo	n/a	n/a	n/a	por .ra.ðyo
r-strength.	r̄a.βo	n/a	kar.r̄o	iz.r̄a.el	por .r̄a.ðyo
tap deletion	n/a	na/	ka.r̄o	n/a	po.r̄a.ðyo
phonetic rep.	[r̄áβo]	[káro]	[káro]	[izr̄aél]	[po.áðyo]

² The syllabification in this example does not make the /n/ part of the following onset. This is perhaps because the prefix /kon-/ may be treated as a separate word.