

THE PHONOLOGICAL SYSTEM OF SPANISH

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Abstract: Spanish articulatory phonetics, the classification of sounds and the physiological mechanism used in the production of phonemes are discussed in this article. The process of learning a language consists of classifying sounds within the target language. Since the learner may be hearing the utterance in a different way than the native speaker some objective criteria are needed to classify sounds. If these distinctions are not mastered, he may be perceived as sounding awkward. Other phonological processes are applied in informal situations due to socio-linguistic factors such as age, social class, and education. Sound deletion in particular phonological environments are not done randomly by the speaker, but by necessity to retain semantic comprehension. Allophonic choices within phonemes make up the dialect for a particular area.

Keywords: Spanish phonology, phonetics, articulation, sounds, dialect.

1. ARTICULATORY PHONETICS

The goal of phonetics is to seek a comprehensive description of classes of sounds and of the general mechanisms of speech production caused by the respiratory system as air passes in and out of the lungs through some form of obstruction (within the mouth, pharynx, and larynx). Articulatory Phonetics is one of the branches of linguistics concerned with the study of sounds as produced by the human vocal apparatus that is able to create an infinite amount of sounds. The traditional phonetic classification of speech sounds is based primarily on three variables:

- 1) The activity or non activity of the larynx in terms of voiced or voiceless sounds,
- 2) The place of maximum constriction in the mouth or pharynx referred to as the point of articulation, and
- 3) The type of sound-modifying mechanism in the mouth or pharynx referred to as the manner of articulation.

Other features called secondary articulation used as modifications of the basic speech sound offer a more precise classification. The vocal cords for example may be either opened or closed. When these cords are brought together while air is passing through them, the vibration resulting is the *voiced* sound. The pitch is then controlled by the tension of the cords. The passage of air through a narrowly constricted opening produces a sound known as "friction", which unlike voice has no pitch. Another type of sound is produced by the closure and opening of the vocal cords called the "glottal" stop.

The various organs that shape the passageway to allow for various sounds are known as "articulators". Often this obstruction is caused by a movable articulator (tongue, velum, lips, etc.), which approaches an immovable one (palate, alveolar ridge, top teeth, etc.).

The roof of the mouth is divisible into four portions: the alveolar, the palate or hard palate, the velum or soft palate, and the uvula. The tongue is divisible into four portions given below with the contact region for each:

1. The apex, which may articulate against the teeth, alveolar, or palate,
2. The front, which may articulate against the alveolar, palate, or velum,
3. The back (or dorsum) which may articulate against the posterior part of the palate or any part of the velum or uvula, and
4. The root of the tongue, which forms the front wall of the pharynx and may alter the size and shape of the pharynx.

The following chart shows the basic points of articulation:

	<u>Lower articulator</u>	<u>Upper articulator</u>
Labial		
Bilabial	lower lip	upper lip
Labiodental	lower lip	upper teeth
Apical		
Dental	apex of tongue	upper teeth
Alveolar	apex of tongue	alveolar
Retroflex	apex of tongue (And even underside of tongue)	palate
Frontal		
Alveopalatal	front of tongue	alveolar and far front of tongue
Prepalatal	front of tongue	front of palate
Dorsal		
Palatal	back of tongue	back of palate
Velar	back of tongue	velum
Uvular	back of tongue	extreme back of velum or uvula

The diaphragm and the abdominal muscles that vary the volume of the cavity, and the intercostal muscles that increase the volume of the thoracic cavity by moving the sidewalls control inhalation and exhalation of air. During speech these muscles are subject to rapid variation or short pulses. This series of short pulses are the phonetic syllables. The chain of sounds that can be produced on one breath is called the breath group. Vowels for example require relatively larger amounts of air than consonants. All speech therefore consists of a sequence of such syllables and breath-groups.

1.1. Consonants

With respect to the manner of articulation consonants are classified as follows:

1. Stops: total occlusion in the oral cavity with the velum raised so that no air escapes through the nasal passage.
2. Fricatives: produced by the narrowing of the passage that allows only a small opening for the air stream.
3. Affricates: share properties with both stops and fricatives. The stop is present, but the release also involves some friction.
4. Nasals, like stops, are produced with total occlusion, but the air stream passes through the nasal passage.
5. Liquids include the “l” and “r” sounds. Some classifications divide these into lateral for the “l” sounds and vibrants for the “r” sounds. Laterals are produced by the occlusion with the side(s) of the tongue lowered allowing the air to escape through the mouth. Vibrants are made with the tip of the tongue in the dental or alveolar region.¹

¹ English has no uvular type consonants. The most posterior (nonanterior) lingual articulation is the pharyngeal consonants in which the body of the tongue is retracted toward the back of the throat. These are very rare, existing mostly in Arabic.

Consonants often vary their place of articulation so they become more like the adjacent sound. Secondary articulation is the lesser degree of closure by two articulators. For example labialization or lip rounding produces a fricative then the secondary articulation of velarization occurs when the back of the tongue is raised.

2. GENERAL PHONOLOGY

A phoneme is a class of sounds that is one element in the sound system of a language having a character set of interrelationships with each of the other elements in that system. These are;

1. Morphophonemic interchanges (contrasts between phonemes)
2. Sequences of phonemes possible within morphemes (non-contrasting classes of sounds)
3. Functions of the units within stretches of speech (systematic relationships).

To study linguistics or even to speak a language we must perceive certain utterances as the same; others as phonetic elements that are “linguistically significant”. For example in utterances such as pin, bin, tin, din, kin, fin, sin, etc. the initial consonants are said to be contrasting phonemes; these contrasts are linguistically significant because they affect both the meaning and understanding of the word. In English cake and take become two separate phonemes of /k/ and /t/ to correctly pronounce the different phonemic meanings. The whole range of [k]-like sounds remain a single phoneme /k/ since English has no minimal pairs² for any two [k]-like sounds. However, a different linguistic background, such as Arabic, has numerous minimal pairs contrasting two varieties of [k]-like sounds, making it necessary to divide the phoneme into either /k/ or /q/.

The process of learning another language involves learning to make phonemically significant distinctions in the new language. The learner will need to have some objective criteria of the range of sounds that may be included within any given phoneme. Two such criteria must be met:

1. The sounds must be phonetically similar (an articulatory-based description is satisfactory for judging similarity) and
2. The sound must show certain characteristic patterns of distribution in the language or dialect under consideration.

These requirements must be restricted to a single language since the range of sounds present for a given phoneme would differ. For example, *pero* vs. *perro* has different sounds to distinguish two different meanings in Spanish, whereas no significant distinction of *pero* and *perro* are made in English. A speaker must also learn to make new uses of familiar sounds (for example Spanish speakers must reclassify the sound for the orthographic “qu” as in *quinto* [kinto] to a new sound [kw] as in the English word quick as the sound that is used by Spanish speakers in “cu” spelled words such as *cuanto*).

Any two sounds cannot be two independent phonemes if the language has no contrasting minimal pairs and the sounds are always in free variation (interchangeable). These two sounds are only two points within the range that constitutes one phoneme. The ranges of pronunciation within the phoneme are called allophones. The actual variants of the phoneme occur according

² The 5 vowels may appear in any place in the word and differ very slightly between dialects. It is rare, however, for i or u to appear in unaccented syllable final position. It never appears in syllable nucleus but appears in verb forms or in cultisms such as *álbum*, *tribú*, and all its names.

to the location in the phonetic environment (such as word initial, syllable final, intervocalic, etc.) and also vary from dialect to dialect or even from speaker to speaker.³ These phonetic differences are linguistically significant and characterize native control of a language. The speaker learning a second language must master, rather than merely understand, the normal use of allophones in order to sound like a native speaker.

One factor determining allophonic distributions may be physiological. Economy of motion might dictate using front allophones of a phoneme near front vowels and back ones near back vowels. The use of a particular allophone in some contexts, however, may be simply a matter of conventional linguistic habit passed down through history as well as a matter of social conformity (the one used by peers or considered prestigious).

The distinction between phonemes and allophones allows us to recognize the two levels of phonological representation: the phonetic and the phonemic level. It is the phonemic level (/p/, /t/, etc.) which shows that which may be different at the systematic phonetic level (for example p: as [pit] and second segment [spit]) are 'sames' at the higher, more abstract level of phonemic representation and yet are related to the systematic phonetic representation by certain rules.

Stream of speech is divided into segments each assigned to some phoneme; the segmentation of an utterance depends in part on the phonemic background of the observer. Different languages divide similar phonetic material into different numbers of segments or at different places. The pattern of segmentation is one of the linguistic patterns of the language and is affected by the speaker's conception of an utterance or what he perceives of the actual utterance. The linguist tries to find a model of the utterance, which most adequately fits the observed fact, while staying within limitations imposed by the language.

3. THE PHONOLOGICAL SYSTEM OF SPANISH

The parameters used in classifying Spanish consonants are anterior and coronal. Anterior sounds are formed in the forward part of the mouth (from the lips to the alveolar ridge), non-anterior being articulated further back such as /k/. Coronal sounds are made with the blade of the tongue (coronal t, not p or k) making contact with some part of the oral cavity. Anterior articulations are the labial consonants; bilabials p, b, and m, and labio-dentals f and v. Coronal articulations are dental plosives and alveolars (dentals t, d, n, and alveolars s, z, in most languages), and retroflex consonants where the tip of the tongue is retracted. Palato-alveolars and velars, since not produced in the forward part of the mouth are non-anterior, but are also coronal like the dentals and alveolars as the blade of the tongue is involved in articulation. Non-anterior and non-coronal articulations are produced for velar consonants k, g, h, palatal consonants in which the tongue is high and front and the vowel u. The body of the tongue can also be retracted beyond the velar regions with constriction in the area of the uvula.⁴

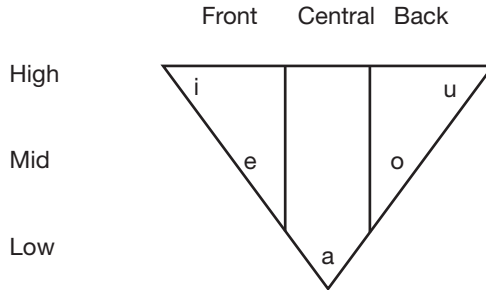
In vowel production the air stream is not impeded and there is no contact with upper or lower articulators, instead the position of the tongue changes the shape of the oral cavity. Nasalization of vowels occurs when the velum is lowered and air passes through the nasal cavity. Nasalization, lip rounding, and length of duration are secondary articulations and do not distinguish

³ The different phonemes and allophones differ not only between languages but may differ between dialectal regions such as [z] and [s] (*casa*, *caza*), which are contrasting phonemes in Castilian Spanish but are only variants of the same phoneme in Latin American Spanish. [ll] and [ly], however, are only choices of which allophone to use and speakers of a certain region use a particular one for those set phonetic environments.

⁴ English has no uvular type consonants. The most posterior (nonanterior) lingual articulation is the pharyngeal consonants in which the body of the tongue is retracted toward the back of the throat. These are very rare, existing mostly in Arabic.

vowels in Spanish or change the meaning of the utterance. Vowels are described in terms of their most significant features; 1) tongue height and 2) tongue position.

The vowel system showing five meaningful positions can be drawn as a triangle:⁵



1. High front [i] as in *pi*so.
2. Mid front [e] as in *pe*so.
3. Low central [a] as in *pa*so.
4. Mid back [o] as in *po*so.
5. High back [u] as in *pu*so.

The phonological processes depend on the syllables as the basis for a complete description of the phonological system of Spanish. The following rules apply to the syllabic division of words:

1. Words with more than one vowel which is separated by only one consonant in the middle, the consonant goes with the second syllable,
2. For two consonant cluster groups; if the consonant group could begin a word in Spanish [pl, pr, bl, br, tr, dr, cl, cr, gl, gr, fl, fr] it can begin a syllable; ex: *a-gra-da-ble*. If the cluster could not begin a word the sequence must be divided with one consonant on each syllable; ex: *per-la, gran-de*.
3. For three consonant cluster groups between vowels the same rule applies; ex: *com-ple-tar*.

If the syllable has two vowels together they can form a diphthong and three vowels together can form a triphthong. A diphthong is formed when two vowels in a syllable consist of a strong vowel (a, e, o) plus a weak vowel (u or i). The shortest and weakest of the two can come before or after the other vowel. The following shows all the possible diphthongs in Spanish:

Semi-vowel before	i	e	a	o	u
i	*	bien	hacia	adiós	ciudad
u	cuido	bueno	cuando	cuota	*
Semi-vowel after					
i	*	seis	aire	boina	*
u	*	Europa	auto	*	*

Diphthongs can also be produced across words when a vowel ends one word and begins another; ex: *mi amiga*. Triphthongs are rare in Spanish. Most occur in the second person plural

⁵ The 5 vowels may appear in any place in the word and differ very slightly between dialects. It is rare, however, for i or u to appear in unaccented syllable final position. It never appears in syllable nucleus but appears in verb forms or in cultisms such as *álbum, tribu*, and all its names.

form of the verbs (the *vosotros* endings such as *averiguáis*), however, some triphthongs occur in rare noun forms, such as *buey* and *huey*.

3.1. Spanish Phonemes

The following charts show the Spanish phonemes and their allophonic variations as well as each one's place and manner of articulation:

Points of Articulation									
Manners of Articulation	Bilabial	Labio-dental	Inter-dental	Dental	Alveolar	Palatal	Velar	Bilabio-velar	Glottal
Stops	p b			d t			k g		
Slit Fricatives		f				y	x	w	(h)
Groove Fricatives					s				
Affricates						ç			
Nasals	m				n	ɲ			
Laterals					l				
Tap					r̄				
Trill									

Most dialects of American Spanish have only 18 consonant phonemes, lacking both the /θ/ (Castilian dental fricative) and /ɻ/. In some dialects /h/ replaces /x/, thus the parentheses on the chart. The symbols in the upper part of the boxes represent voiceless phonemes; those in the lower part, voiced phonemes.

Stops /p, t, k, b, d, g/ and fricative /w/

Phonemes

	Bilabial	Dental	Velar	Bilabio-velar
Stop	p b	t d	k g	
Slit Fricatives				w

Allophones

	Bilabial	Labio-dental	Dental	Velar	Bilabio-velar
Stops	p b		t d	k g	
Slit Fricatives	ɸ	v	ð	ŋ	w

Affricate /ç/ and fricatives /f, s, y, x, (h)/

Phonemes

	Labio-dental	Inter-dental	Alveolar	Palatal	Velar	Glottal
Slit Fricatives	f	θ		y	x	(h)
Groove Fricatives			s			
Affricates				ç		

Allophones

	Bilabial	Labio-dental	Inter-dental	Alveolar	Palatal	Velar	Glottal
Slit Fricatives	p	f	θ		ç y	x	h
Groove Fricatives				s ś z ź	š ž		
Affricates					č č̣ ỵ		

Nasals /m, n, ñ/, Laterals /l, ʎ/, Tap /r/, Trill /r_l/, and the letter x

Phonemes

	Bilabial	Alveolar	Palatal
Nasals	m	n	ñ
Laterals		l	ʎ
Tap		r	
Trill		r _l	

Allophones

	Bilabial	Labio-dental	Dental	Alveolar	Palatal	Velar
Slit Fricatives				ř ṛ̌ .		
Nasals	m	m̥		n	ñ	ŋ
Laterals			l,	l	ʎ	
Tap				r		
Trill				r _l r _l .		x r r .

Review of Vowels /e, a, o, i, u/

Phonemes

	Front	Central	Back
High	i		u
Mid	e		o
Low		a	

Allophones

	Front	Central	Back
High	i		u
	i		u
Mid	e		o
	e		o
Low		a	

Review of Consonants /y, w/

	Palatal	Bilabio-velar
Slit Fricative	y	w

3.2. Phonological Processes

A. The consonant phoneme /s/ (similar to /n/ and /r/ in syllable final or word final position) may have phonological processes occurring for inner word syllable final position. For example, in words such as *esto*, *mismo*, *isla*, the /s/ may be retained or deleted. If retained, it may be manifested as either the sibilant [s] or as the aspirated [h] (See Barrutia & Terrell, 1982). The aspiration or elision of the /s/ is present in these areas;

1. Southern Spain (Andalucía)
2. Caribbean Spanish including Puerto Rico, Cuba, Dominican Republic, Panama, Venezuela, and Gulf of Mexico coast (Vera Cruz)
3. Coastal areas of Columbia, Ecuador, and Peru
4. El Salvador, Honduras, and Nicaragua
5. Chile
6. The greater part of the River Platte countries of Argentina, Uruguay, and Paraguay

The tendency in all of the above-mentioned zones is the [h] aspiration or complete deletion [o]. The sibilant [s] is reserved for formal situations such as spoken lectures. Deletion of /s/ in word final position is influenced by certain factors such as the function of the /s/ within the sentence. In words such as *mes*, *después*, *entonces*, and *Jesús*, the /s/ has no grammatical function but is a lexical /s/, therefore the deletion is more common since the phonemic understanding would not be affected. In an utterance such as /*las dosimedya*/ as to whether the speaker meant *dos* or *doce* when the first vowel is reduced. In Castillian Spanish however, this ambiguity would not exist due to the phoneme /θ/ representing the orthographic “c” in *doce*.

When the /s/ in word final position is part of the verbal system it may have one of four functions:

1. To make the second person singular, ex: *tú tienes*, *ves*, *dirás*. If deletion is opted here there exists the possibility for confusion of the third person (*Ud. tiene*) if the pronoun is unspoken in the phrase.
2. To form the ending of the first person plural, ex: *nosotros hablamos*, etc. In this case the /s/ is not the only indicator and its deletion would not alter the comprehension of the phrase. *nosotros comemos* > / *nosotro komemo*/.
3. *Tú eres*
4. *Ud. es*

In addition to lexical and verbal the /s/ can indicate plural. The plural /s/ functions in three grammatical categories: subjects (*niños*, *clases*), subject modifiers (*los*, *mis*, *lindos*), and pronouns (*ellos*, *ustedes*). In the nominal phrase there must be a number agreement. The average phrase, therefore, would have various indicators as to whether the subject is singular or plural (*mis primeras clases*, *nuestros amigos chilenos*). In a nominal phrase then it would suffice to hear one /s/ to interpret the whole phrase as plural.

In cases of plural, deletion depends on the possible redundancy. A more educated speaker tries to conserve the /s/ in the first word of the nominal phrase, as [h] or [s] depending on the phonetic context. The other /s/ occurrences however, may be deleted any time they follow the initial modifier with a conserved /s/, as [s] or [h], ex: *mis padres* [mih padre_], *esos médicos de otras especialidades* [esoh médko_ de otrah ehspesialidade_]. /S/ deletion is therefore applied systematically by the number of syllables or with /s/ plural by the possible redundancy.

For lexical and verbal /s/, deletion depends on the number of syllables in the word. If it is one syllable, the tendency is to conserve the /s/ as either the [h] aspirated or the [s] sibilant. In words with more than one syllable, there is more freedom to eliminate the /s/.

The choice of [h] or [s] is determined by the phonetic context of the word.

If the phoneme is followed by a consonant, the tendency is toward the aspirated variant, ex: *fueron con nosotros* [h] *dos muchachos*. If the /s/ is followed by a pause as in phrase final position, the /s/ is frequently pronounced as a sibilant, ex: *son muy admirable* [s]. If the /s/ is followed by a vowel, the choice differs among Spanish speakers. Caribbean speakers prefer an aspirated [h], *vamo* [h] *al cine*, unless the /s/ is followed by an unstressed vowel or the first modifier in a nominal phrase in which case the sibilant [s] is preferred; ex: *los huracanes, las otras*. Argentinian and Uruguayan speakers prefer the sibilant [s] when followed by a vowel whether stressed or unstressed.

In some parts of the Caribbean, especially the Dominican Republic, the process of the /s/ deletion is so extensive that the only place the /s/ is conserved is before a stressed vowel; ex: *las ala_*. The plural then, for these speakers, must be indicated in other ways;

1. The form of the verb, ex: *mis amigos van con nosotros* - becomes (mi amigo van con nosotros),
2. By a quantifier, ex: *tengo muchos primos* - becomes (tengo mucho primo),
3. By the /o/ of the modifier, ex: *los niños, algunos momentos* - becomes - (lo niño, alguno momento),
4. By the /e/ of words such as: *árboles* - becomes - (árbole), and
5. By the absence of a determiner, ex: *Eso es para niños* - becomes (Eso e_ para □ niño).

The choices described here are used principally among the educated classes of the Caribbean (Puerto Rico and Cuba), Panama, Venezuela, and the coasts of Columbia, Ecuador, and Chile.

Two other dialectal zones can be compared:

- 1) The countries of the River Platte which are more conservative
- 2) Dominican Republic and possibly the coasts of Venezuela that show greater phonological development

The River Platte speaker deletes the /s/ in few occasions; however, when he conserves the /s/ he also chooses between the [h] and [s]. The aspirated [h] however, tends to be stronger and has more friction than the Caribbean [h]. For River Platte dwellers, the aspirated [h] is used before consonants, and the sibilant [s] elsewhere, including before pause and before stressed or unstressed vowels. The main difference is that the River Platte area conserves the sibilant and does not aspirate before a vowel, ex: *dos animales*.

Therefore, the phonetic representation of the phoneme /s/ as either the allophone [o], [h], or [s] is applied systematically by the speaker. Deletion depends on the number of syllables of the lexical or verbal word, and the grammatical redundancy of the plural marker /s/. Conservation depends on the type of segment in the phonetic environment that follows.

B. Velarization and deletion of /n/: In syllable final [canto, tango] and word final position [pan, tratan] the /n/ may be either velarized [ŋ] or deleted, in which case the preceding vowel is nasalized; ex: *pan* becomes [pã]. This process of /n/ deletion for word final and syllable final is com-

mon in many Hispanic areas but especially the Caribbean. When /n/ is followed by a consonant the process is normally nasal assimilation toward the following sound; ex: *tanto* [taŋto] *tengo* [teŋgo] however, /n/ deletion in syllable final position is more frequent if the following sound is a fricative. In the Caribbean the articulation of this nasal is so weak that it is not perceived and the preceding vowel is nasalized *canto* > [kãto]. The nasalized vowel could then be followed by a voiced obstruent /b, d, or g/ which would then be pronounced as the fricative form which is the normal allophone after a vowel rather than the stop that would have been produced when following a nasal; ex: *ambos* becomes [ãbos], *mango* becomes [mãgo].

For the /n/ in word final position, its pronunciation can be divided into three relevant phonological contexts:

- 1) If followed by a word beginning with a consonant, the /n/ assimilates to the point of articulation of the following consonant; ex: *en pocas cosas* the /n/ becomes the bilabial nasal, [m].
- 2) If followed by a vowel, the usual allophone is the [n] alveolar except for the Caribbean speaker who articulates a velar nasal [ŋ].
- 3) If followed by a pause, in absolute final position the /n/ would be either
 - a. velar nasal, ¿*qué tiene*[ŋ]? or
 - b. /n/ deletion, giving the preceding vowel a nasalized aspect as in inner-word position.

C. Lateralization. The vibrant /r/ in syllable final or word final position may be partially lateralized as the manifestation of a hybrid sound or completely lateralized substituting the [l] for [r]; ex: *parte* > [pal-te] *color* > [kolól]. This is common in the Caribbean, especially among those from Puerto Rico and the Dominican Republic.

An aspect of speakers of the River Platte area is the use of a sibilant [ʒ] for the voiced palatal /y/, which is normally manifested as a voiced palatal or alveopalatal fricative in general American Spanish. This allophone normally produced by the River Platte speakers is “close” to the same sound as the English “s” as in *measure*. This articulation of the sibilant is called *rehilamiento*. Speakers from this dialect are *yeistas* in that there is no audible distinction between the y and ll written forms of the /y/ phoneme, but there is a distinction with words spelled with the phonetic representation hi + e: ex: *mayo* becomes [maʒo] *llama* becomes [ʒama], but *hiedra* becomes [iedra] or [yedra].

Dealing with educated speech, Harris (1969) notes that in instances of free variation where the speakers may choose between two or more phonologically correct pronunciations, speakers do not choose by random, but in fact perceive certain choices as more careful or more elevated speech. He presents the following hierarchy and examples of styles.

Largo	Very slow, deliberate, over-precise, typical of correcting a misunderstanding or communicating with a foreigner.
Andante	Moderately slow, careful but natural, typical of delivering a lecture or teaching class.
Allegretto	Moderately fast, casual, colloquial, typical of many situations, may alter with andante even in mid-sentence.
Presto	Very fast, completely unguarded.

A speaker may change his pronunciation depending on the style he chooses at the time. One example of style choices of the same word between different dialects is as follows:

	Mexico	Havana
Largo	[mismo]	[mismo]
Andante	[mis ^o mo]	[mis ^o mo]
Allegretto	[mis mo]	[mishmo]
Presto	[miszmo]	[mi mo]

D. Assimilation occurs when one sound changes its characteristic features to be more like a neighboring sound. As seen with nasals, one sound changes its character (nearly always the place of articulation) to be more like a neighboring sound. Regressive-influence goes backwards: *un beso* becomes [un**β**eso]. Progressive (less common) an earlier sound influences a later one. Voicing assimilation is the phenomenon in which the sound takes on the voiced quality due to the articulation of the voicing feature for the following sound, ex: *mismo* > [mizmo].

The process of nasal and lateral assimilation varies according to the speech style chosen.

Unassimilated [n] before a vowel or before a pause is alveolar. Labiodental [m̥], dental [n̥], and velar [ŋ] may occur where the alveolar [n] normally does as a result of assimilation. The speaker may use nasal assimilation in differing degrees dependent upon the speech style used for the utterance.

- Largo - word final does not assimilate toward the initial consonant of the following word. Assimilation occurs within a word before obstruents, but not before nasals, liquids, or semi-vowels.
- Andante - distribution of nasals within the word are the same as Largo. With Andante, however, it has partial assimilation across word boundaries. For this style of speech, Navarro Tomás states that word final /n/ before /p/ or /b/ is pronounced [m], so there would be no distinguishing pronunciation difference between *conpadre* and *compadre*, both being [kompádre]. There is also an intermediate sound that is produced in andante style that does not lose its alveolar articulation but is influenced in part by labialization, the closure of the lips.
- Allegretto - distribution of nasals within a word is the same as above and the distribution over word boundaries is the same as within words with few exceptions. Nasals assimilate to the following glide across word boundaries but not within a word, ex: *un hielo* > [unyelo], *un huevo* > [unwebo], but *miel* > [myel], *nuevo* > [nwebo].

For lateral assimilation, in Largo and Andante, the [l] is alveolar. In Allegretto, /l/ assimilates to the point of articulation of a following dental [t, d] or alveo-palatal [ç] obstruent. L is realized as palatal [ʎ] before y or across a word boundary but as alveolar [l] before y within a word; ex: *al hielo* > [aʎyelo] but *aliento* > [alyento].

Laterals in general assimilate to the following consonant as nasals do, with the exception that there are no velar or labial laterals. The following shows the realizations of /l/ as it assimilates to the point of articulation of the next consonant provided it is a dental, alveolar, palato-alveolar, or palatal; those points that can assume a lateral:

dental	[eʎ tío]	el tío
alveolar	[el niño]	el niño
palato-alveolar	[eʎ chico]	el chico
palatal	[eʎ llavero]	el llavero

The same type of chart can be used to show the assimilation of [n] to the following consonant. The nasals /m, n, and ñ/ contrast phonemically in intervocalic position, *cama, cana, caña*, however, in a sequence of nasal + consonant there is no phonemic contrast therefore the point of articulation of the following consonant conditions the point of articulation of the nasal.

[um] beso]	un beso
[um fenómeno]	un fenómeno
[uŋ tiro]	un tiro
[un niño]	un niño
[un çiko]	un chico
[uñ yate]	un yate
[un gato]	un gato

Changes are noted for the lax obstruent phonemes /b, d, g, y/ depending on phonetic environment. The phonemes are manifested as a stop after a pause, after a nasal, and after /l/ (for /d/ and /y/. They occur as fricatives in all other environments.

	after pause	after nasal	after /l/	all other environments
/b/	[bamos]	[ambos]		[b] abre
/d/	[dámelo]	[aɲdar]	[aldeá]	[d] nada
/g/	[gaɲdul]	[maɲgo]		[g] algo
/y/	[ýa boj]	[uñ ýate]	[el ýate]	[y] mi yate

E. Neutralization occurs when phonemes fail to maintain their differentiate function in identical environments, mostly syllable final where articulation is relaxed, ex: *ampara, un peso, un dedo*. The distinctive feature of /n/ is nasality and to this are added the allophonic features dictated by the phonetic context, such as bilabiality and voice before [p], dento-alveolarity and voice before [d] and so on. The phonemes here, /m/ and /n/ do not keep their differentiating qualities which they show in syllable initial position. The difference between bilabial and dentoalveolar articulation in syllable final position are not phonemically important and simply affects “accent” but does not affect the meaning or understanding of the utterance. Intervocally however, the articulations chosen are pertinent in the meaning, ex: /r/ and /r̄/ are in opposition between vowels as in *pera* vs. *perra*. In syllable final however, the speaker may choose which of these to produce, or as stated earlier some speakers, especially throughout the Caribbean area, confuse liquids with vibrants and choose which to use in particular linguistic environments. ex: *arma > alma, tarde > talde* and *hablar* could become either [abl̄ar] or [abl̄ar̄].

F. Velar softening occurs when velar stop /k/ is softened to the fricatives [ç] and [s] in Castilian and Latin American Spanish respectively when followed by a front vowel. This is reflected in orthography; the letter “c” is pronounced [k] before a, o, u, and at the end of a word, but as [ç] or [s] before e and i; ex: *eléctrico / electricidad*. The velar stop /g/ is softened to the fricative [x] before the same semi-vowels, which is also indicated by the spelling; ex: *gato / gerente*. The final consonant of the morpheme *electric* does not always have the same phonetic realization: *electric* vs. *electricity* but it differs from the forms /pass and pack/ in that the first /s/ and /k/ are manifestations of two separate morphemes while *electric* & *electricity* are variants of a single morpheme.

G. Another alternation involving velars is called Palatization in which the /k/ sound is pronounced on the palate due to the influence of the vowel, ex: r̄ *efleksibo* vs. r̄ *eflexo* or *láktiko* vs. *leâe*.

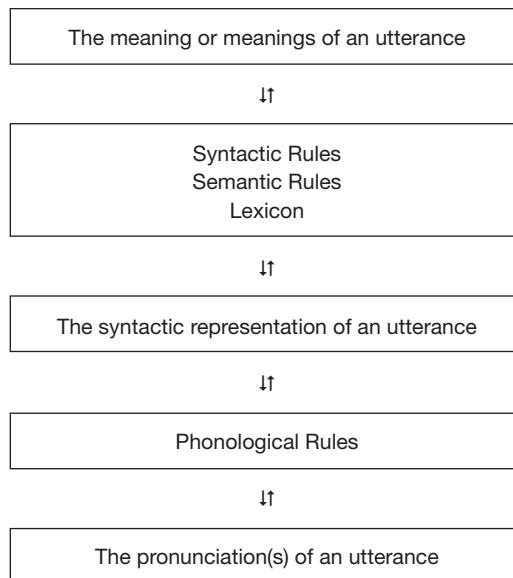
H. Final “e” is deleted for the singular forms of words after a single voiced coronal consonant (includes [l], [r], and [s]) or after y; ex: *leyes* > *ley*, *papeles* > *papel*. After /z/ some “e”s are deleted and others retained, ex: *lucés* > *luz* but *rocés* > *roce*. After other consonants and after clusters the “e” is retained.

I. Vowel deletion in Chicano Spanish always targets the first vowel (V1) in a vowel sequence. V1 deletion is mandatory in Allegretto speech if the two vowels in sequence have the same value for the feature [back] and falling sonority (ex: *porque Italia* - porqu[i]talia, *compró uvas* - compr[ú]vas). Vowel deletion is mandatory if V1 in the sequence is /a/ (ex: *una india* - un[Ø]india, *lleva ochenta* - llev[Ø]ochenta).⁶

4. GENERATIVE GRAMMAR

Generative grammar is divided into components; a syntactic component describes sentence structure, a semantic component describes meaning, a phonological component describes pronunciation, and a lexical component describes the vocabulary.

The diagram below shows the speaker as beginning at the top with an idea, which he encodes into a sound stream, and views the hearer as beginning at the bottom with a sound stream, which he encodes into an idea:



In a generative grammar of Spanish four rules can be worded using examples, including vowels that suffer no modification across word boundaries. Examples of each are shown.

⁶ Other sources for discussion of /a/ deletion include Kaisse (1985) for Puerto Rican Spanish; and Stockwell, Bowen & Silva-Fuenzalida (1956), and Contreras (1969) for Chilean Spanish. Although primarily an American phenomenon, /a/-deletion is observed in some Peninsular dialects as well.

For sequences of two vowels separated by a word boundary:

- 1) There is no change-
 - a) if the second vowel is stressed, ex: *casa alta*, *tu hija*, and
 - b) if the highest vowel is stressed, ex: *comí aquí*.
- 2) There is fusion if number one does not apply and the two vowels are identical, ex: *te espero* [tespéro].
- 3) There may be a diphthongization if neither one nor two apply; the reduction from vowel to semi-vowel is subject to the following conditions:
 - a) if there is a difference in tongue-height the highest vowel is reduced, ex: *mi amigo* [miamígo],
 - b) if there is no difference in tongue-height but there is a difference in stress, the unstressed vowel is reduced, ex: *vendré otra vez* [bendrèotrabés],
 - c) if there is no difference in tongue-height or stress, the first vowel is reduced, ex: *tu inocencia* [tuinosénsia].
- 4) Instead of diphthongization, there may be elision of the first vowel if neither one nor two apply, and the following additional conditions hold:
 - a) the first vowel is lower than the second,
 - b) the first vowel is unstressed,
 - c) the two vowels are not opposed to each other as to the front/back distinction, /a/ being neutral.

Thus *casa humilde* [kàsumílde] and *caso humano* [kàsumáno], but *lo ataca* *[latáka]* violates condition 1, *está ocupado* *[estókupádo]* violates condition 2, and *[importante]** violates condition 3. [*Asterisks above denote incorrect usage].

5. CONCLUSION

An overview of the Spanish phonological system, articulatory phonetics and dialectal regions is presented as an important component of teaching the Spanish language. Phonological processes often occur during informal situations where the speech is fast and natural. Geographical regions also dictate the type of phonological processes that occur. In addition the speaker may choose particular sounds. Factors that influence the speaker's choice of pronunciation variations include conformity to local style and peers, perceived speech style, registry, and socio-linguistic factors.

The native speaker produces these sounds correctly, either intuitively or as part of learning the rules of his particular phonetic environment. The second language learner must have an awareness of the phonetic patterns of Spanish in order to avoid mistakes due to an analogy of their own language system and to distinguish sounds that effect comprehension. Thus learners may distinguish sounds, practice utterances, and fine tune production until achieving near-native pronunciation.

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