

More on Distinctive Features

(1) I expect you to know the following features:

Features distinguishing vowels & consonants	Manner Features	Place Features	Laryngeal Features	Vowel Features
[±syllabic] [±consonantal]	[±sonorant] [±continuant] [±delayed release] [±strident] [±nasal] [±lateral]	[±labial] [±coronal] [±dorsal] [±anterior] [±distributed]	[±voiced] [±spread glottis] [±constricted glottis]	[±high] [±low] [±back] [±round] [±tense] [±stress]

(2) Distinguishing consonants and vowels

[+syllabic] = {vowels, syllabic consonants}

[-syllabic] = {non-syllabic consonants}

[+consonantal] = {consonants, except glides [j, w, ɥ, ...]}

[-consonantal] = {vowels, glides}

	Vowels	Consonants		
		Glides	Syllabic Consonants	Non-glide Consonants
[+syl]				
[+cons]				

How do you say it in features?

Vowels = [+syl, -cons]

Consonants = [-syl]

Glides = [-syl, -cons]

Syllabic consonants = [+syl, +cons]

(3) Manner Features

[+sonorant] = {vowels, approximants, nasals, trills}

[-sonorant] = {stops, fricatives, affricates} = “obstruents”

[+continuant] = {vowels, approximants, trills, fricatives}

[-continuant] = {stops, nasals}

For fricatives and affricates only:

[+strident] = {labiodental, alveolar, retroflex, palato-alveolar, uvular fricatives/affricates}

[-strident] = {labial, dental, palatal, velar fricatives/affricates}

Any loud fricative with extra “turbulence” is [+strident].

Used to distinguish:

labiodental [f, v] from bilabial [ɸ, β]

alveolar [s, z], palato-alveolar [ʃ, ʒ], retroflex [ʂ, ʐ] from dental [θ, ð]

uvulars [χ, ʁ] from velars [x, ɣ]

Example 1: English plural / 3s suffix –s

So far we’ve only talked about the surface forms [s] (after most voiceless consonants) and [z] (after vowels and most voiced consonants): *bats* [bæts], *bags* [bægz], *buys* [baɪz]. There is another surface form of this suffix [əz], which occurs after [+strident] coronals.

[+coronal]			
[-strident]		[+strident]	
[θ]	eighth[s]	[s]	kiss[əz]
[ð]	bathe[z]	[z]	phras[əz]
		[ʃ]	ash[əz]
		[ʒ]	garag[əz]
		[tʃ]	church[əz]
		[dʒ]	judg[əz]

Rule: -s → [əz] / [+strident] ____
 → [s] / [-voiced] ____
 → [z] elsewhere

[+nasal] = {nasals, nasal vowels, ... any sound with the velum lowered}

[-nasal] = {oral vowels, obstruents ... any sound with the velum raised}

Example 2: Nasalized vowels in English

In English vowels tend to be nasalized preceding a nasal consonant:

ham	[hæ̃m]	ban	[bæ̃n]	bang	[bæ̃ŋ]
slim	[sɪ̃m]	pin	[pɪ̃n]	sing	[sɪ̃ŋ]
hum	[hʌ̃m]	ton	[tʌ̃n]	tongue	[tʌ̃ŋ]

Rule: [+syl, -cons] → [+nas] / ____ [+nas]

[+lateral] = {lateral approximants}
 [-lateral] = {non-lateral sounds}

To distinguish stops and affricates (which are both [-cont]):

[+delayed release] = {affricates, fricatives, approximants, nasals, trills}
 [-delayed release] = {stops}

(4) Place Features

Articulated with the lips

[+labial] = {bilabial, labiodental}
 [-labial] = {dental, alveolar, palato-alveolar, retroflex, ...}

Articulated with the tongue blade

[+coronal] = {dental, alveolar, retroflex, palato-alveolar}
 [-coronal] = {labial, palatal, velar, uvular, ...}

For coronals only:

[+anterior] = {dental, alveolar} = *at or before the alveolar ridge*
 [-anterior] = {retroflex, palato-alveolar} = *after the alveolar ridge*

[+distributed] = {dental, palato-alveolar} = *laminal*
 [-distributed] = {alveolar, retroflex} = *apical*

[+cor]	Dental	Alveolar	Retroflex	Palato-alveolar
[ant]				
[dist]				

Example 3: Alveolar and dental nasals in English

know [nɒʊ]	tenth [t ^h ɛn̩θ]	(cf. ten [t ^h ɛn])
annoy [ənɔɪ]	month [mʌn̩θ]	
onion [ʌnjən]	panther [p ^h ænjən]	

Rule: [+nas, +cor] → [+dist] / ___ θ

Articulated with the tongue body

[+dorsal] = {palatal, velar, uvular}
 [-dorsal] = {labial, dental, alveolar, retroflex, ...}

(5) Laryngeal Features

[+voiced] = voiced sounds

[-voiced] = voiceless sounds

[+spread glottis] = aspirated obstruents = *vocal cords remain open after release*

[-spread glottis] = unaspirated obstruents

[+constricted glottis] = {ejectives, implosives}

[-constricted glottis] = {all other sounds}

(6) Vowel Features

[+high] = {i, ɪ, y, ʏ, i̯, ɨ, ɯ, u, ʊ, glides, some consonants }

[-high] = {all other vowels }

[+low] = {a, æ, ɑ, ɶ, some consonants }

[-low] = {all other vowels }

How do you specify mid vowels?

[+back] = { i̯, ɨ, ɯ, u, ʊ, o, ɔ, ɤ, ʌ, w, some consonants }

[-back] = {j, all other vowels }

[+round] = {w, y, ʏ, u, ʊ, ɨ, ɤ, ø, œ, ɔ, o, ... }

[-round] = {j, other vowels }

[+tense] = {i, e, a, o, u }

[-tense] = {ɪ, ɛ, ɔ, ʊ, æ }

[+stress] = {stressed vowels }

[-stress] = {unstressed vowels }

(7) Consonants that have vowel features

Consonants articulated after alveolar ridge are usually *specified* for the vowel features [high], [low], [back], [round].

[+high]: (palato-alveolar), palatal, retroflex, velar, uvular consonants

[+low]: pharyngeal and glottal consonants

[+back]: velar, uvular, pharyngeal, (glottal) consonants

[+round]: [w]

palatalized consonants [p^j, t^j, ...] are [+high, -back]

velarized consonants [p^ɤ, t^ɤ, ...] are [+high, +back]

labialized consonants [p^w, t^w, ...] are [+round]